Developing an inventory to Assess Parental concerns and Enable child dental Registration (DAPER)

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Developing an inventory to Assess Parental concerns and Enable child dental Registration (DAPER)

Phase 3 Report:

Field trial of the PDCS using the CHATTERBOX intervention

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Contents

Executive Summary

Introduction

Childsmile is the National Oral Health Promotion programme for children in Scotland. It is in three parts: [i] Childsmile Core is a universal programme offering free toothpaste and toothbrushes to all families with children 0-5 years, and offers supervised toothbrushing in nursery schools. [ii] Childsmile Nursery and School offers children residing in the 20% most deprived areas six monthly fluoride varnish application in nursery and from Primary I onwards. [iii] Childsmile Practice supports families of children at the greatest risk of dental caries. This support aims to help families with young children to register with a local dental practice, and to provide advice on healthy foods and drinks for children.

Childsmile has contributed to significant improvements in Scottish children's oral health (Merrett *et al*., 2008) and assisted in achieving national child dental health goals (Scottish Executive, 2005); nevertheless major disparities remain. Children living in Scotland's most deprived communities continue to suffer from much higher levels of dental caries than children living in more affluent communities. In addition, families engaged in Childsmile Practice do not always attend dental appointments, with a failure to attend rate of 32% being reported (Deas et. al., 2010). Families failing to attend tend to be more concentrated in the areas of greatest social deprivation (Macpherson *et al.,* 2012). It is with this background that the Oral Health and Health Research Programme, Dental Health Services Research Unit at the University of Dundee, was commissioned to conduct the **D**eveloping an inventory to **A**ssess **P**arental concerns and **E**nable child dental **R**egistration (DAPER) research programme.

Barriers experienced by parents to accessing dental treatment for their children were highlighted in the first qualitative investigation of the DAPER programme (Chambers and Freeman, 2010). The second part of the DAPER programme demonstrated that the Parental Dental Concerns Scale (PDCS) based on the parental dental-related concerns highlighted in DAPER I, was able to identify parents with high levels of dental concerns. Moreover, these parents were those less likely to engage in preventive dental visits for their children (Chambers and Freeman, 2011; Chambers et. al., 2013).

This Executive Summary details the final part of the DAPER research programme- DAPER III.

Aim and Objectives of DAPER III

The aim of the third part of the DAPER research programme was to conduct a field trial of the Parental Dental Concerns Scale (PDCS) to identify parents' dental-related concerns and assess if a tailored intervention by Dental Health Support Workers (DHSWs) would enable parents to access dental care for their child. In addition, lessen parental dental-related concerns and increase satisfaction with dental services and Childsmile.

The objectives were:

1. To conduct a realist review to explore the factors that influence adherence following one-to-one interventions.
2. To develop a communication tool to facilitate parent-DHSW communication, so that the DHSWs could tailor support according to the dental-related concerns of the families and support parent-child dental attendance.
3. To conduct a field trial of the PDCS using the communication tool (CHATTERBOX) to assist parents speak of their dental-related concerns
4. To conduct in-depth qualitative explorations with DHSWs from NHS Highland and NHS Tayside, to investigate the impact of organisational and individual factors upon DHSWs' engagement with vulnerable families and the CHATTERBOX intervention.
5. To provide a series of vignettes of the CHATTERBOX intervention with patients.

Method

A realist review was conducted to explore the factors that influence adherence following one-to-one interventions. This review provided the evidence base regarding the importance of building relationships between the DHSWs and families, so as to facilitate registration and attendance at a Childsmile Practice. A communication tool (CHATTERBOX) was developed to facilitate parent-DHSW communication so that the DHSWs could tailor support according to the dental-related concerns and needs of the families and support parent-child dental attendance. This was followed by a field trial of the PDCS and CHATTERBOX.

Finally, in-depth qualitative interviews were conducted with DHSWs from NHS Highland and NHS Tayside to investigate the impact of organisational and individual factors upon DHSWs' engagement with vulnerable families and the CHATTERBOX intervention.

Results

[1] Realist review

The realist review revealed that the quality of the relationship between the client and health care provider was key to the successful outcome of one-to-one health interventions, that is, adherence with health recommendations. The attachment style of the client and health care provider moderated this outcome of the one-to-one health intervention.

[2] Field trial of the PDCS using CHATTERBOX

Ten mothers in NHS Highland and NHS Tayside participated in the CHATTERBOX intervention, eight completed the baseline questionnaire. Seven mothers stated that dentists were family friendly and five reported that travelling to the dentist was easy and not expensive. Seven of the mothers were satisfied with the service they received from Childsmile. Two mothers reported feeling miserable, one reported feeling down most days, and two stated they did not feel like their usual self since their child was born. Five mothers reported that they were unhappy with where they were living. Five had dismissive attachment styles, two were securely attached, and one had fearful attachment style. Sixty percent of parents took their children to a Childsmile Practice following the CHATTERBOX intervention.

[3] Process evaluation

The process evaluation revealed [i] individual and [ii] organisational factors that influenced the behaviours of the DHSWs in implementing the CHATTERBOX intervention.

[i] Individual factors

Individual and organisational factors impacted on the execution of DAPER III. Findings from this study suggest that the behaviours of DHSWs which influenced their implementation of the CHATTERBOX intervention resulted from a combination of how capable they felt, the opportunities that arose for using CHATTERBOX, and how motivated they felt.

DHSWs' knowledge about the task given to them as well as their competence and skills influenced how capable they felt about visiting families in their homes and using CHATTERBOX to explore parents' reasons for not taking their children to the dentist. Their capability was also reflected in the decision they made about introducing CHATTERBOX to a family when they were in a home.

DHSWs' opportunity to use CHATTERBOX was influenced by access to families, communication with colleagues and the culture of their NHS Board. Gaining access to the families was very difficult because of increased mobility, changing telephone numbers and difficulties communicating with colleagues. The lack of clear protocols, in some NHS Boards, to complete the referral loop when a referred family had failed to attend was an additional barrier to delivery of the intervention.

Professional role and identity, environmental context, and incentives emerged as facilitators and barriers to motivation in using CHATTERBOX and visiting parents in their homes. Once initial fears had been overcome and CHATTERBOX had been used, at least once, confidence was increased. Therefore, usage increased facilitation and motivation. Motivation also emerged as a dimension of Childsmile implementation. In the NHS Board where Childsmile Nursery and School had been implemented first, it was harder to balance the dual roles of community health worker and service provider.

[ii] Organisational factors

Although CHATTERBOX was well received by families, recruitment into the study was poor. This highlighted the difficulty in accessing this group of vulnerable families.

Communication at the organisational level emerged as a major influence on implementation of Childsmile Practice and the CHATTERBOX intervention. Poor communication within NHS Boards, with Dental Practices, and with Health Visitors was reflected in the low

referral rates and lack of clear protocols to follow up those families that failed to attend for dental care. The 2011/2012 Childsmile National Headline Data reported a decline of 30% (compared to the previous year) in referrals to DHSWs and a 21% decline in the number of children who were successfully contacted by DHSWs. Findings from this study reflect national findings.

Organisational communication with communities influenced DHSWs' capability, opportunity and motivation to implement the CHATTERBOX intervention. This highlights the importance of community relations in a programme such as Childsmile, which is based on health promotion principles of the Ottawa Charter (Macpherson et. al., 2010; WHO, 1986)

Recommendations

For families to make sustained behavioural changes, a positive long-term relationship with their DHSWs is important. For vulnerable families, a one off visit by the DHSW is not sufficient; the DHSW needs to build a connection with these families to facilitate regular child dental attendance.

Therefore it is important to:

- Clearly define the role of the DHSW
- Provide additional training to support the DHSWs fulfil their dual roles of community health worker and service provider
- Improve communication between DHSWs, HVs, Public Dental Health Service, and General Dental Practice
- Have robust protocols for closing the referral loop and following up families who fail to attend for dental care
- Share information and experiences across NHS Boards

Next Steps for CHATTERBOX

Findings from DAPER III suggested that CHATTERBOX was well received by families but difficulties were encountered with regard to implementation of the intervention by DHSWs. Therefore, a detailed feasibility study is required of CHATTERBOX in NHS Boards with extensive experience of home visits, to test the effectiveness of the CHATTERBOX intervention in reducing parental dental concerns and enabling them to access dental care for their children.

Introduction

Oral health in Scottish children

Children in Scotland have traditionally had high levels of poor oral health. With this in mind, the Scottish Executive set a target of 60% of 5 year olds to show no signs of obvious dental decay by 2010 (Scottish Executive, 2005). To enable this, an additional target was set of 80% of 3-5 year olds to be registered with an NHS dentist by 2008 (*Ibid*). Since then the oral health of Scottish children has continued to improve. All NHS Boards across Scotland have now achieved this 60% target, with 67% of 5 year olds in 2012 having no obvious decay experience (Macpherson *et al.,* 2012). Although there have been improvements in oral health in all SIMD quintiles, inequalities still remain, with those from the lowest socioeconomic backgrounds (SIMD 1) still having the worst oral health outcomes (*Ibid*). Only 50.5% of 5 year olds in the most deprived areas (SIMD 1) had no obvious decay experience, compared to 62.1% and above in the other SIMD quintiles (*Ibid*). By June 2009, the target of 80% of Scottish children aged 3-5 registered with an NHS dentist was reached and exceeded reaching 90.7% in March 2013 (ISD Scotland, 2013).

The Childsmile Programme

Improvements in children's oral health in Scotland have been attributed to the introduction of the Childsmile programme (Merrett *et al*., 2008). Childsmile is Scotland's national oral health programme for children. Childsmile aims to improve the oral and general health of all Scottish children, but is particularly committed to reducing inequalities and oral health disparities. The Childsmile programme is both universal and targeted in its approach (proportionate universalism), offering preventive dental care and enabling child dental registration. Every child will have access to Childsmile, but support will be tailored to the needs of individual children and their families.

The implementation of Childsmile has evolved through three main work streams: 1) a Core Toothbrushing programme, 2) Childsmile Nursery and School, and 3) Childsmile Practice.

1) Childsmile Core Programme

As part of the Childsmile Core Programme, families are provided with free oral health packs up until aged five. Private and local authority nurseries are invited to take part in daily supervised toothbrushing, as well as Primary 1 and 2 classes from schools in the 20% most deprived areas.

2) Childsmile Nursery and School

Childsmile Nursery offers children residing in the 20% most deprived areas 6 monthly fluoride varnish application in nursery. Similarly, Childsmile School offers 6 monthly fluoride varnish application to children residing in the 20% most deprived areas in the school setting from Primary 1 onwards.

3) Childsmile Practice

Childsmile Practice is intended to improve the oral health of all children in Scotland, from birth. It aims to link families to Primary Care Dental Services by age six months. All children are invited to take part in the Childsmile Practice programme. Families are risk assessed via their Health Visitor (HV) to determine whether the child is at risk of developing tooth decay. Children identified as at risk are referred to a Dental Health Support Worker (DHSW).

The role of the DHSW is to contact children from the age of three months, make a first appointment for the child with a local Childsmile Practice, and visit families most in need to provide oral health information and support with dental registration and attendance . At the Childsmile Practice, parents meet trained dental nurses and are given advice on toothbrushing techniques and information on diet and health. When the child is around 18 months they will be seen by a practice dentist. It is envisaged that in the future older children will be provided with fluoride varnish application and fissure sealants when attending the dental practice.

In addition, DHSWs assist parents who request help with registration via the nursery/school fluoride varnish consent form, and families whose children have been identified as requiring dental examination/treatment during the varnish sessions.

Childsmile Practice challenges

Although great progress has been made in improving the oral health of children in Scotland, major areas of concern remain. This is particularly true of children living in Scotland's most deprived communities. Whilst only 18.8 % of children in the least deprived areas show signs of obvious dental decay by age 5, 49.5 % of children in the most deprived areas are affected by the same age (Macpherson *et al.,* 2012). In addition, only 45.5% of 0-2 year olds are currently (31st March 2013) registered with an NHS dentist, far short of the 55% target set by the Scottish Executive (ISD, 2013; Scottish Executive, 2005).

Two previously published qualitative studies identified lack of transport and childcare, negative perceptions of dental care providers, lack of parental tradition of going to the dentist, and lack of parental confidence as barriers to parents attending dental appointments with their children (Kelly *et al*., 2005; Hallberg *et al*., 2008). These findings were supported by the results of the qualitative exploration of parental dental-related concerns found in DAPER I (Chambers and Freeman, 2010).

A meta-analysis showed that a good relationship between the patient and health care provider greatly improves the likelihood of the patient adhering to health care interventions or recommendations (Martin *et al*., 2000). In addition, interventions tailored to the needs of patients significantly improve their health behaviours (Wanyonyi *et al.,* 2011). Therefore, to ensure long term dental attendance it is important to build positive relationships between the DHSWs and vulnerable families and provide support tailored to their needs.

These issues highlight that Childsmile Practice has a critical task ahead, particularly in ensuring younger children are registered, and that families in deprived communities are engaged with preventive dental care.

It is in this context that the Oral Health and Health Research Programme, Dental Health Services Research Unit, at the University of Dundee was commissioned to undertake the DAPER research programme (**D**eveloping an inventory to **A**ssess **P**arental concerns and

Enable child dental **R**egistration). DAPER focused on understanding the barriers to dental attendance in order that families may be identified and supported to access dental health care. DAPER consists of three parts: a qualitative exploration of parental dental-related concerns; the design and validation of a quantitative measure of parental dental-related concerns; and a field trial of the measure to identify families with high dental-related concerns requiring additional support to access Childsmile Practices. This report focuses on the results from the third part of the DAPER programme.

Aim and Objectives

The aim of the DAPER research programme was to develop an inventory to assess parental dental-related concerns and enable child dental registration and attendance for preventive dental care. DAPER has three main objectives:

[I] DAPER I: Conduct a qualitative exploration to identify the main dental-related concerns of parents.

[II] DAPER II: Assess the psychometric properties of a new questionnaire to assess parental dental-related concerns regarding registration and access for preventive dental care for their child.

[III] DAPER III: Conduct a field trial of the Parental Dental Concerns Scale (PDCS) to identify parents' dental-related concerns and assess if a tailored intervention by Dental Health Support Workers (DHSWs) will enable parents to access dental care for their child. In addition, lessen parental dental-related concerns and increase satisfaction with dental services and Childsmile.

The objectives of DAPER III were:

1. To conduct a realist review to explore the factors that influence adherence following one-to-one interventions.
2. To develop a communication tool to facilitate parent-DHSW communication, so that the DHSWs could tailor support according to the dental-related concerns of the families and support parent-child dental attendance.
3. To conduct a field trial of the PDCS using the communication tool (CHATTERBOX) to assist parents speak of their dental-related concerns.
4. To conduct in-depth qualitative explorations with DHSWs from NHS Highland and NHS Tayside, to investigate the impact of organisational and individual factors upon DHSWs' engagement with vulnerable families and the CHATTERBOX intervention.
5. To provide a series of vignettes of the CHATTERBOX intervention with patients.

1. Attachment, client-provider relationship and client adherence: a realist review of one-to-one health interventions.

Introduction

The success of one-to-one health interventions to promote client adherence with health advice and compliance with therapeutic regimes has in recent years been revisited. Systematic reviews have suggested that there is some evidence to support the view that one-to-one interventions between health provider and client may change clients' dietary behaviours (Harris et al., 2012), increase client choice (Edwards et al., 2000) and modify client lifestyle (Wanyonyi et al., 2011). Careful examination showed that, while in some instances, advice would be readily adopted and incorporated into behaviour, other research suggested that information had a variable effect with regard to its longevity in changing people's lifestyles. Consequently, one-to-one interventions could have no impact or result in short-lived behaviour change in some, and long-term behaviour change in others (Watt, 2005). The evidence for the effectiveness of one-to-one interventions appeared to be both variable and misleading due to the 'intervention-specific' focus of systematic reviews, which allows important insights with regard to the context of the one-to-one intervention and interpersonal factors on the part of the provider and client to be omitted. Therefore, factors related to the context of when and how the health intervention message was communicated and/or heard, which could reduce the effectiveness of the one-to-one intervention, remain unexplored.

In order to address the context in which the intervention occurred, Pawson et al. (2005) suggested a method should be found that permitted the synthesis of evidence from different areas within the health care arena. In such situations, with evidence from disparate sources, they proposed that a realist approach which 'enables [*researchers*] to locate and synthesize evidence across different fields of practice' (Pawson et al., 2005), would allow an exploration into why some people are adherent with one-to-one health interventions and other people are not. Realistic reviews are, therefore, particularly suited to explore the context of one-to-one interventions together with 'the how' and 'the why' one-to-one intervention may or may not be effective (Levac et al., 2010, Pawson et al., 2005). Such research questions are underpinned by a theoretical assumption concerned with how interpersonal factors may intervene to affect client adherence as an outcome of one-to-one interventions. Realistic reviews, therefore, provide helpful insights into how these factors operate and interact with one another, either intentionally or otherwise. They also permit an examination of how

these factors affect client adherence while exploring the context in which the one-to-one intervention took place.

Review aim and objectives

The aim of this review is to use a theory-driven evidence synthesis (realist review) to identify what affects successful one-to-one interventions i.e. client adherence. The review will be in two stages. The first stage will propose a theoretical formulation to explore factors which intentionally or unintentionally influence the effectiveness of one-to-one interventions to promote client adherence. The second stage will test this theoretical formulation using disparate sources of evidence (published or otherwise) across the health care arena employing a realistic synthesis approach (Pawson et al., 2005).

Methods

Theoretical formulation

For the purposes of this review client adherence will be used as the alternative to patient compliance (Vermeire et al., 2001, McNabb, 1997, Sacket and Snow, 1988). The term adherence is preferable to compliance since adherence is said to reflect equality in the client-provider interaction, reflecting an increase in client empowerment and decision-making. Client adherence can therefore be considered as an outcome of the interplay between client and health provider (Delamater, 2006). The idea that it is the quality of the interaction between participants which acts as a factor in client adherence was first described by Szasz and Hollender (1956). In the first model of their three clinician-patient models they proposed that the patient was passive and the clinician active, in the second model the clinician instructed the client and the client obeyed, and in the third model the clinician advised,and with the client negotiated the outcome. In this final mutual-participation model, client and provider were equal partners. The concept of mutual-participation as a model for client adherence has been reconsidered and is supported by more recent research. Specific aspects of the quality of the interaction have been highlighted as important, with client previous experience and social influence impacting upon how clients perceived the providers' affective support, the provison of decisional control and how health information was conveyed (Cox, 1982). Nathanson et al. (1985) went on to

suggest that it was the ability of the provider to convey a sense of trust and confidentiality, warmth and emotional support together with a non-directive approach that improved the quality of the interaction (Nathanson and Becker, 1985). With the focus of the interaction on the communication of empathy and equality, the quality of the skills used by the provider were felt to be of central importance. Being able to explain, to listen, and to assist with problem solving were perceived as the crux of the mutual-participation model, which paved the way for client adherence with one-to-one health interventions (Bultman and Svarstad, 2000; Jin et al., 2008).

In this formulation communication factors act via a conscious mechanistic pathway to improve the quality of the client-provider interaction, however, other unforeseen or unintentional mechanisms located within the provider and client have the potential to affect the quality of the interaction and the success of the one-to-one intervention. In this theoretical scenario, the conscious communication interaction provides a platform from which unconscious behavioural interactions from the past connect and are acted out in the 'here and now' between the participants. It is by exploring and understanding these unconscious factors on the side of the client and on the side of the provider which will permit an insight into the mechanisms which may or may not undermine the intervention outcome.

Central to client adherence is the formation and maintenance of a therapeutic relationship or treatment alliance (Greenson, 1965), which is built on the real relationship and the conscious constructs associated with communication and trust. The treatment alliance is an adult to adult interaction between client and provider (Gelso and Carter, 1994). However unconsciously, past relationships and experiences exert a pressure and act as moderators with regard to the maintenance of the treatment alliance. For Shattell et al. (2007) the unconscious determinants act together 'co-creating' earlier experiences in which provider and client brings their life experiences (Cox, 1982) and current life circumstance to the interaction. In such situations, the adult quality of the treatment alliance falls away to reveal a parental-child interaction (transference) where more controlled emotional states make way for increased discomfort and anxiety (regression). It is the clients' ability to withstand their discomfort at the behest of their attachment to the provider which is expounded as being explanantory in this regard (Shattell et al., 2007, Bowlby, 1982). On the side of the

provider, it is the security of the providers' attachments which permit containment of their own fears as well as the clients' affects and relational difficulties (Bion, 1962). It is proposed that it is the containment of the clients' affect, within the treatment alliance, that provides the context in which the client identifies and internalises with the provider's capacity for self-care (Fonagy, 2001). Therefore, for one-to-one interventions to be successful a treatment alliance (provider-client interaction) must be formed and its maintenance, it is suggested, is influenced by the security of the clients' and providers' attachments. The containment of client discomfort by the provider, within the treatment alliance, will impact upon the client's identification and internalisation of the provider and the health intervention. Thus the quality of the interaction acts to promote or undermine the success of the one-to-one intervention and its outcome.

In order to present this psychodynamic theoretical formulation in an accessible way it is possible to conceptualise client and provider attachment as moderators and the complexities of their interaction as mediators with regard to the outcome – client adherence. Although mediators and moderators are traditionally tested statistically, this realist review aims to test the theoretical possibility of this pathway, to understand the intended or unintended effects of interpersonal interactions in influencing client adherence following one-to-one interventions.

The client's attachment style or the provider's attachment style are therefore postulated to act as moderators to explain individual differences in client adherence, and in this way the unexpected findings from intervention studies could be explained by the moderator model (Figure 1). A moderator variable is an effect modifier (Baron and Kenny, 1986, MacKinnon and Luecken, 2008) and is postulated to work in two ways [1] the client's own attachment style influences how they perceive and interact with the provider to accept the intervention provided, [2] the provider's own attachment style interacts with that of the client to influence the effect of the one-to-one interaction and ultimately client adherence. Finally, it is the dynamic relationship between client and provider (i.e. the treatment alliance) that influences adherence and is hypothesised to work via the mediation model (Figure 2). A mediator is an intermediate variable in a causal pathway, the mediation model is used to explain causal mechanisms and explore how an intervention produces an outcome (Baron and Kenny, 1986, MacKinnon and Luecken, 2008). Mediation is a relationship where an

independent variable influences the mediating variable, which in turn influences the outcome (Baron and Kenny, 1986, MacKinnon and Luecken, 2008).

Figure 1 Moderation model

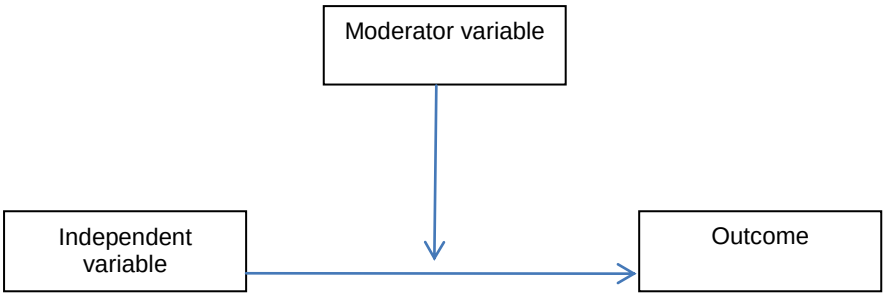
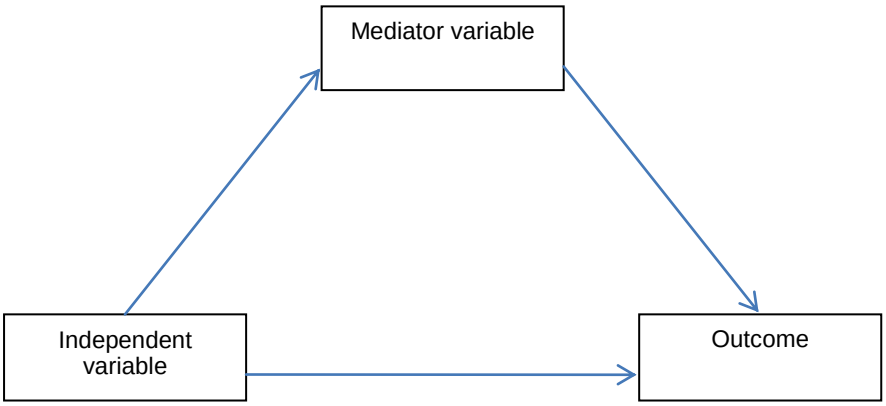


Figure 2 Mediation model



Therefore, the theoretical model proposed here is that [1] the client's attachment style could modify (moderate) the relationship between the one-to-one intervention and adherence, so that the success or failure of the intervention (adherence) varies according to the attachment style of the client, [2] or the attachment style of the provider. In addition, [3] the client-provider relationship could act as a mediating variable in the causal pathway to explain how one-to-one interventions lead to client adherence.

Searching the literature

The electronic data bases searched were: MEDLINE and CINAHL plus (accessed via the interface EBSCO host), SCIRUS, SCOPUS and PsycARTICLES (Table 1).

Initial scoping searches revealed that social relationships were relevant to both attachment style and client adherence. Various terms were used in the literature to describe social relationships in relation to health. Therefore, the systematic search used search terms that ensured comprehensive coverage. 'Social' and 'attachment' were used as broad terms so that related terms such as social networks, social support, attachment style and attachment orientation would be included in the search. Asterisks were inserted at the end of the word-stems 'adher*' and 'compl*' to ensure that all related words with different endings were included in the search (e.g. adherence, adhere, comply, compliance), they were combined with the Boolean operator 'OR' to broaden the search to find any results that contain either one or both terms. Full texts of articles were scanned for search terms. All search terms were combined using 'AND' so that relevant studies that included all variables of interest would be identified. A second systematic search was conducted for articles on attachment style using the search: 'secure attachment' OR 'attachment security' OR 'securely attached' OR 'insecure attachment' OR 'insecurely attached' OR 'attachment insecurity'. This was done to minimise the chances of missing relevant articles. The results of the first search were imported into EndNote and duplicates removed, leaving 2252 citations. The search results of the second search were imported into a second EndNote library and duplicates removed, leaving 3705 citations. Finally, the two search libraries were combined and duplicates once again removed, resulting in 5595 items in the final EndNote library. All abstracts were then screened by SN and RF independently and 27 citations that broadly addressed the research question were identified and full texts obtained. An additional eight citations were found from the reference lists of the identified publications. The 35 full texts were read and re-read by SN and RF and a consensus was reached to include primary studies (not including case studies), published in the English language and addressing the role of attachment and client-provider relationship with adherence, within the same study. This resulted in 11 studies being included in the review (Figure 3).

Figure 3 Flow diagram illustrating search process and study selection

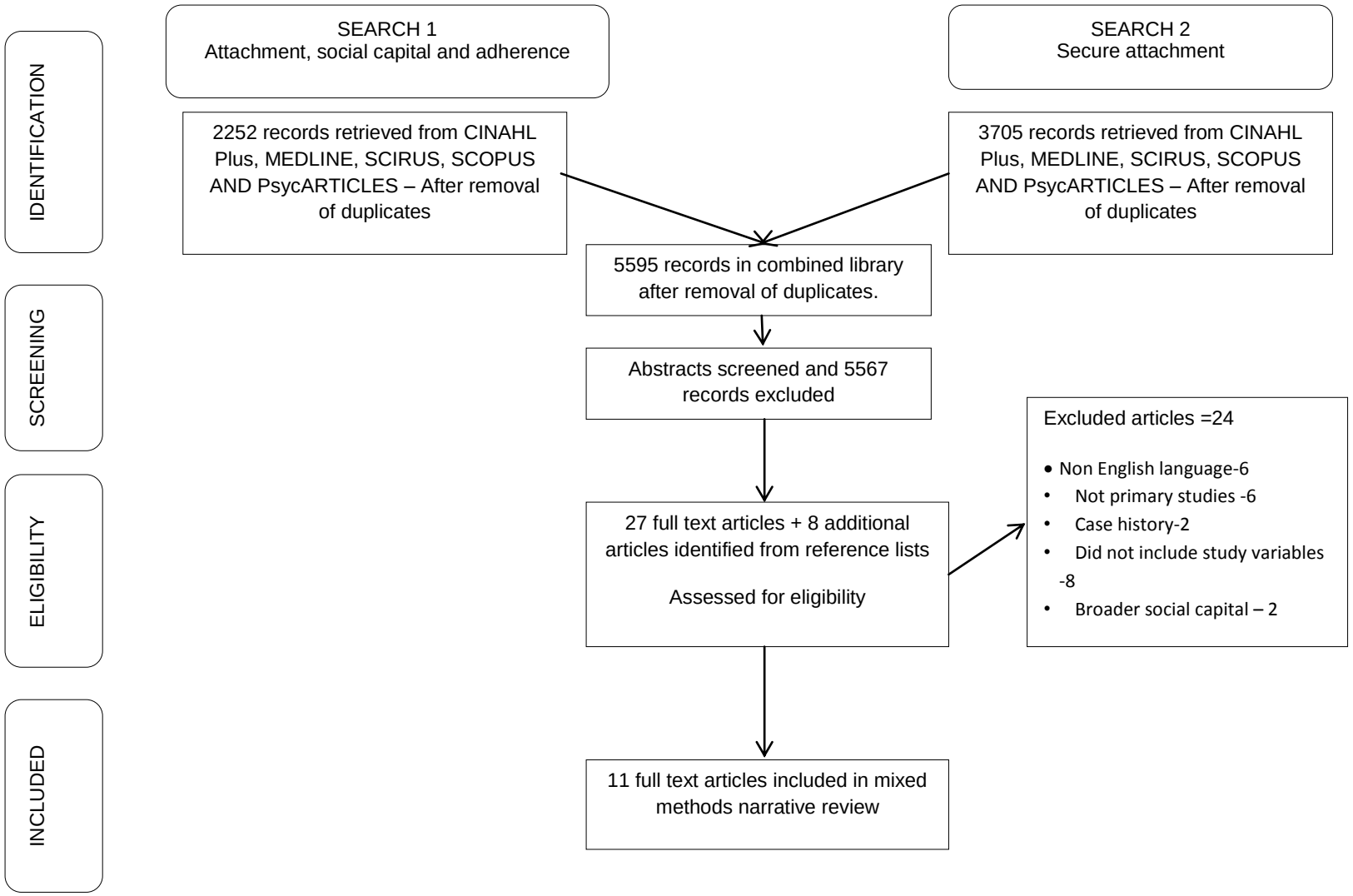


Table 1 Search strategy

Search	Limiters	Years (no limits set)	Data base	Number of articles retrieved	Date of Search
TX (adher* OR compl*) AND TX social AND TX Attachment	Expanders - Apply related words; Also search within the full text of the articles Search modes - Boolean/Phrase		Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus	411	16/05/12
TX (adher* OR compl*) AND TX social AND TX attachment	Search modes - Boolean/Phrase Limiters - English Language		Interface - EBSCOhost Search Screen - Advanced Search Database - MEDLINE	(887)	15/05/12
"secure attachment" +(adherence OR compliance OR comply OR adhere) +social	(filtering by journal sources only)		SCIRUS	382	14/5/12
(TITLE-ABS-KEY(adher* OR compl*) AND TITLE-ABS-KEY(social) AND TITLE-ABS-KEY(attachment)	Title, abstract, keyword	1960-2012	SCOPUS	1213	16/05/12
attach*:Any Field AND social:Any Field AND adher* OR compl*:Any Field	Any field		PsycARTICLES	101	14/05/12

Various types of health outcomes (e.g. diabetic self-care activities, pain management, and weight loss) are included in the review. The outcomes range from improved treatment effects (weight loss) to adherence with treatment recommendations (diabetic self-care activities) and are henceforth referred to as 'adherence with one-to-one interventions'. The rationale for combining the two types of outcomes is that they are both the result of one-to-one interventions and the interplay between client and provider. Including studies that look at a range of different health outcomes allows us to assess different intentional or unintentional contextual factors that could influence adherence.

Quality appraisal of studies

Quality appraisal for realist reviews differs from traditional usage in systematic reviews. In realist reviews, studies are included based on *relevance* and *rigour*. A study is deemed to be relevant if it addresses the theory being tested. The rigor of a study is a testament to the credibility of inferences drawn from that study (Pawson et al., 2005). Quality assessment was therefore conducted to assess the relevance of the study and the validity of its contributions to our proposed theoretical model. The robustness of the studies included in the review were assessed using a modified version of the tool 'Systematic Appraisal of Quality in Observational Research' (SAQOR) (Ross et al., 2011) for observational studies and the NICE checklist (National Institute for Health and Clinical Excellence, 2009) for qualitative studies.

Data extraction and synthesis

A data extraction template was developed based on the proposed theoretical framework. Data relating to client attachment style, provider attachment style, client-provider relationship, adherence, and the relationships between the three were extracted from each of the included studies and used to populate the theoretical framework. Data extraction also included descriptive information, research methods, measures of study variables and main findings (Table 2); this assisted in assessing the relevance of study data for answering the research questions.

The extracted data was synthesised using a realist approach (Pawson et al., 2005, Wong et al., 2013) to identify what influences client adherence with one-to-one interventions. The synthesis starts with bringing together all the evidence to test the initial models proposed in the theoretical formulation. As the synthesis progresses the initial theory is refined until a final model emerges which assists in understanding the intended or unintended effects of interpersonal interactions in influencing client adherence following one-to-one interventions.

Results:

A descriptive summary of the studies included in the review is presented initially, followed by a summary of emerging themes. Following this, the themes are merged to identify underlying common mechanisms that could explain why some clients, across a range of health outcomes, are adherent with one-to-one interventions and others are not.

Descriptive summary

Study characteristics

Of the eleven studies included in the review, ten were quantitative studies (Ciechanowski et al., 2004, Bliss, 2009, Ciechanowski et al., 2001, Bennett et al., 2011, Smith et al., 2012, Byrd et al., 2010, Sauer et al., 2010, Kiesewetter et al., 2012, Meier et al., 2006, Reis and Grenyer, 2004) and one was a qualitative study (Ciechanowski and Katon, 2006). Ten were published in peer reviewed journals (Ciechanowski et al., 2004, Ciechanowski et al., 2001, Bennett et al., 2011, Smith et al., 2012, Byrd et al., 2010, Sauer et al., 2010, Kiesewetter et al., 2012, Meier et al., 2006, Reis and Grenyer, 2004, Ciechanowski and Katon, 2006) and one was a PhD dissertation (Bliss, 2009). The studies were published between 2001 and 2012; eight studies were conducted in the USA (Ciechanowski et al., 2004, Bennett et al., 2011, Bliss, 2009, Byrd et al., 2010, Ciechanowski et al., 2001, Sauer et al., 2010, Smith et al., 2012, Ciechanowski and Katon, 2006), one in Germany (Kiesewetter et al., 2012), one in the UK (Meier et al., 2006) and one in Australia (Reis and Grenyer, 2004). Eight were longitudinal studies (Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006, Kiesewetter et al., 2012, Meier et al., 2006, Reis and Grenyer, 2004, Sauer et al., 2010, Smith et al., 2012) and three were cross sectional (Bennett et al., 2011, Ciechanowski et al., 2004, Ciechanowski et al., 2001).

Population characteristics

Sample sizes ranged from 27 to 4095 participants, with a median size of 82.5. The age of participants ranged from 18-79. All studies (Bennett et al., 2011, Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001, Kiesewetter et al., 2012, Meier et al., 2006, Reis and Grenyer, 2004, Sauer et al., 2010), except one female only study (Smith et al., 2012), included both sexes, with four studies having predominantly (greater than a ratio of 60:40) female participants (Bennett et al., 2011, Bliss, 2009, Kiesewetter et al., 2012, Sauer et al., 2010). The study samples consisted of clients with diabetes (Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001), obesity (Kiesewetter et al., 2012), chronic pain (Bliss, 2009), systemic lupus erythematosus (SLE) (Bennett et al., 2011), drug addiction (Meier et al., 2006), depression (Smith et al., 2012, Reis and Grenyer, 2004) and clients receiving psychotherapy (Byrd et al., 2010, Sauer et al., 2010).

Measurement of attachment style

All included studies used previously validated measures of adult attachment style. Details of the measures used are provided in Table 2. Self-report measures were used in all the studies (Bennett et al., 2011, Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001, Meier et al., 2006, Reis and Grenyer, 2004, Sauer et al., 2010, Smith et al., 2012) except one (Kiesewetter et al., 2012), which used semi structured interviews.

Most often attachment style was assessed in four categories: secure, preoccupied, fearful and dismissing (Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001, Meier et al., 2006, Reis and Grenyer, 2004). Three studies assessed only anxiety and avoidance dimensions (Bennett et al., 2011, Sauer et al., 2010, Smith et al., 2012). Two studies assessed comfort with closeness, comfort depending on others and rejection anxiety (Bliss, 2009, Byrd et al., 2010). One study assessed only three categories: secure, preoccupied and dismissing (Kiesewetter et al., 2012). Attachment was assessed at baseline in all the longitudinal studies (Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006,

Kiesewetter et al., 2012, Meier et al., 2006, Reis and Grenyer, 2004, Smith et al., 2012) except one (Sauer et al., 2010), which assessed attachment at the third counselling session.

Measurement of client-provider interaction

The client-provider interaction was assessed using previously validated self-report instruments (Table 2). The client-provider relationship was assessed in the longitudinal studies at the third week of treatment (Ciechanowski and Katon, 2006, Kiesewetter et al., 2012, Reis and Grenyer, 2004, Sauer et al., 2010, Smith et al., 2012), weekly (Meier et al., 2006), after each treatment session (Byrd et al., 2010) and five weeks after commencement of treatment (Bliss, 2009). Most studies assessed this relationship from the client's perspective only (Bennett et al., 2011, Bliss, 2009, Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001, Reis and Grenyer, 2004, Sauer et al., 2010, Smith et al., 2012), while three studies assessed it from both the client's and provider's perspectives (Byrd et al., 2010, Kiesewetter et al., 2012, Meier et al., 2006).

One-to-one Intervention effects: outcome measures of client adherence

Outcome measures of client adherence were varied and included weight loss (Kiesewetter et al., 2012); length of retention and treatment completion for drug rehabilitation (Meier et al., 2006); pain management, satisfaction and compliance (Bliss, 2009); reduced depression scores (Smith et al., 2012, Reis and Grenyer, 2004); client's progress in therapy (Byrd et al., 2010, Sauer et al., 2010); diabetic self-care activities (Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001); and treatment adherence, satisfaction with care and health related quality of life in patients with SLE (Bennett et al., 2011).

Quality appraisal

All the studies were assessed using the tools appropriate for study type (as described previously) and were found to be of sufficient methodological quality to make credible contributions to testing the proposed theoretical models.

Synthesising the evidence to explain what works for whom and under what circumstances

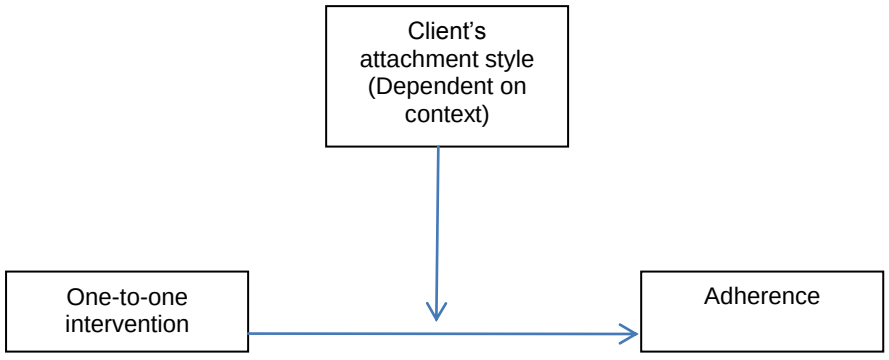
The assumption of realist synthesis is that within a particular context a particular characteristic such as attachment style, triggers specific mechanisms such as the client-provider relationship, which can bring about a change (adherence) (Pawson et al., 2005). Based on this principle, the evidence was synthesised to identify a common underlying causal mechanism which could explain why some clients are adherent and others are not. The overarching recurring theme was 'securing' which emerged from the data as a trajectory from in-securing to securing client adherence with one-to-one interventions. Securing was observed as dimensions of the proposed theoretical model and as the behaviours integrally associated with it. Securing thus reflected the intentional-unintentional impacts of attachment, interaction upon the outcome.

Theme 1: Client attachment style moderating the relationship between one-to-one intervention and adherence

Attachment in its various guises emerged from all of the studies. In support of the client attachment style moderator model (Figure 4), nine studies (Bennett et al., 2011, Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Ciechanowski et al., 2001, Kiesewetter et al., 2012, Reis and Grenyer, 2004, Smith et al., 2012) observed that clients with secure attachment style were more adherent with one-to-one interventions, and clients with insecure attachment styles had poorer adherence. However, two studies (Ciechanowski et al., 2004, Meier et al., 2006) noted unintentional outcomes. In these studies preoccupied attachment style was associated with greater adherence with diabetic treatment recommendations (Ciechanowski et al., 2004), whereas early dropout (non-adherence) was observed in securely attached clients undergoing residential drug rehabilitation (Meier et al., 2006). Careful examination showed that a complexity existed with regard to attachment style and client adherence. Those with dismissing or fearful attachment styles were less adherent with recommended lifestyle changes, whereas those with preoccupied attachment styles adopted recommendations resulting in glycaemic

control (Ciechanowski et al., 2004). It seemed that factors outside the relationship between attachment and adherence, in the form of the unintentional effects, appeared to impact on the moderating effect of client attachment style. The study authors (Ciechanowski et al., 2004, Meier et al., 2006) proposed a refinement of this theory that highlighted the influence of context. Preoccupied attachment is characterised by a focus on pleasing significant others, therefore a desire to please the health care provider would lead the client to adhere with the recommendations of the provider who is the 'significant other' in a long term relationship such as diabetic care (Ciechanowski et al., 2004). Similarly, the unexpected early dropout observed in the drug rehabilitation study may have been a result of secure clients perceiving better psychosocial resources, which made them feel ready to leave treatment before the formal end of the programme (Meier et al., 2006). Therefore, client attachment style appeared to act as a moderator, but the type of attachment style that led to adherence appeared to be context dependent.

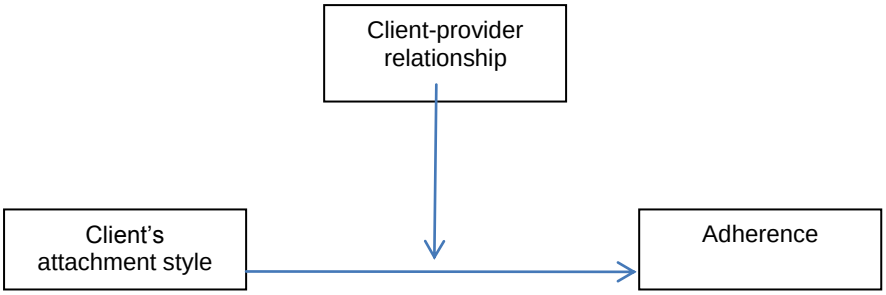
Figure 4 Client's attachment style moderating the relationship between one-to-one intervention and adherence



Theme 2: Client-provider relationship moderator model

Good patient–provider communication was able to change the expected relationship between insecure (dismissing) attachment and poor adherence (Ciechanowski et al., 2001). When the patient-provider relationship was positive, adherence with health interventions was observed even in patients with insecure attachment styles (Ciechanowski et al., 2001). The authors concluded that the quality of this relationship (good communication) modified the expected relationship between client attachment style and adherence (Figure 5).

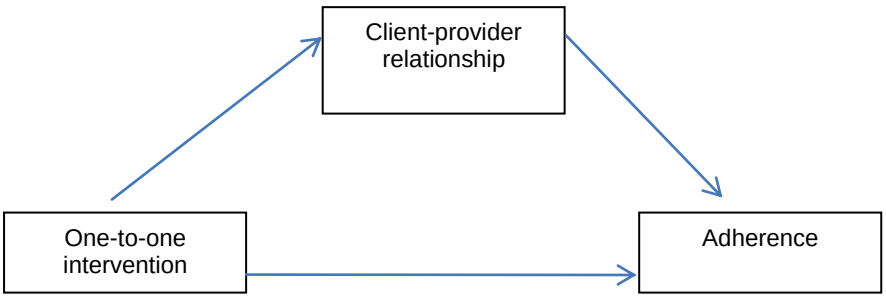
Figure 5 Client-provider relationship moderating the relationship between client's attachment style and adherence



Theme 3: Client-provider relationship mediating the effect of the one-to-one intervention on adherence

Better client adherence was observed when the quality of the relationship between the client and the provider was positive (Bennett et al., 2011, Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Meier et al., 2006, Sauer et al., 2010, Smith et al., 2012). Here the client-provider relationship is hypothesised as mediating the influence of the health intervention on the outcome (adherence) (Figure 6). Mediators and moderators are often differentiated based on temporality (Kraemer et al., 2001); here temporality was theoretically determined because the health intervention preceded formation of the relationship between the client and provider. Therefore, we can postulate that the one-to-one intervention influenced the client-provider relationship and this was responsible for client adherence (Figure 6). Alternately, if the client and provider already had a professional relationship, and at a later stage the provider introduced a health intervention, then the existing relationship would act as moderator and not a mediator.

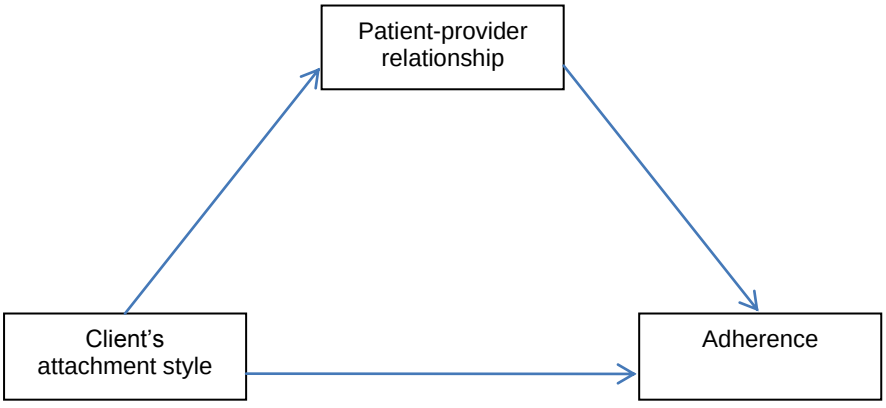
Figure 6 Client-provider relationship mediating the effect of the one-to-one intervention on adherence



Theme 4: Client-provider relationship mediating the effect of client's attachment style on adherence

There was overwhelming support (Bennett et al., 2011, Bliss, 2009, Byrd et al., 2010, Ciechanowski and Katon, 2006, Ciechanowski et al., 2004, Reis and Grenyer, 2004, Smith et al., 2012) for another mediation model, the proposition that the quality of the client-provider relationship mediates the relationship between client's attachment style and adherence. This was demonstrated statistically in four studies (Byrd et al., 2010, Ciechanowski et al., 2004, Reis and Grenyer, 2004, Smith et al., 2012), while three others (Bennett et al., 2011, Bliss, 2009, Ciechanowski and Katon, 2006) showed that client's attachment style was related to the patient-provider relationship, which in turn was related to adherence; thus theoretically fulfilling the criteria for mediation (Baron and Kenny, 1986). Therefore, the client's attachment style affects their adherence with health interventions via the quality of the relationship they have with the provider i.e. the client's attachment style influences the quality of the client-provider relationship, which in turn influences client adherence (Figure 7).

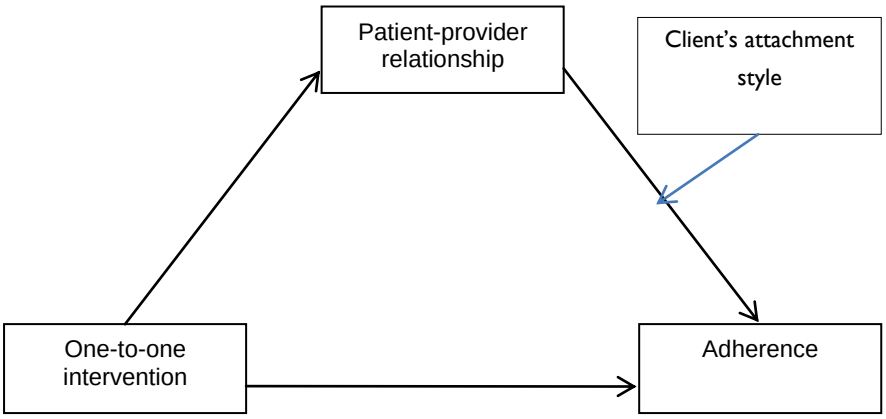
Figure 7 Client-provider relationship mediating the effect of client's attachment style on adherence



Synthesis of the themes and refinement of theory

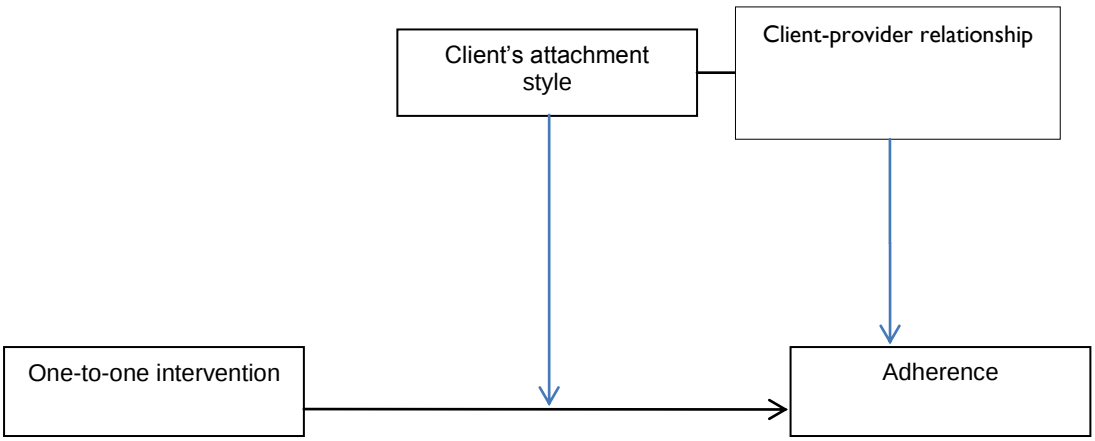
Although the themes that emerged pointed towards the relevance of using the principles of mediation and moderation to explain how, when and why clients were adherent, it also became apparent that none of the models acted in isolation, neither were they mutually exclusive. Rather, adherence resulted as a consequence of both direct and indirect pathways and a complex combination of mediation and moderation. Expanding this logic we proposed that the intervention resulted in adherence through theoretical combinations of the mediation and moderation models, such as mediated moderation and moderated mediation (Muller et al., 2005). A moderated mediation effect (Figure 8) is where the client-provider relationship is chiefly responsible for influencing adherence, but its influence is dependent on the client's attachment style i.e. the outcome is different for people with different attachment styles. In other words, the intervention would result in adherence largely because of the quality of the client-provider relationship, but this effect would be greater when the client was securely attached, although other attachment styles could also result in better adherence based on context, as demonstrated earlier.

Figure 8 Moderated mediation model



Client adherence could also result from an inherently similar process, mediated moderation (Figure 9) (Muller et al., 2005), where the client's attachment style modifies the likelihood of client adherence overall, but its effect is mediated via the quality of the client-provider relationship. Therefore, a client who is securely attached is more likely to adhere with health recommendations because of the good relationship they have with their health care provider (Figure 8). The last two models are essentially "two sides of the same coin" (Muller et al., 2005). The two processes are very closely related and can only be distinguished in studies with appropriate design and statistical analysis. As succinctly put by Muller et al. (2005) "In talking about that coin, we can either concentrate on describing each side in turn, or we can recognise that they both define the common coin". We propose that the pathway to adherence cannot be explained by a single model, but a combination of moderated mediation and mediated moderation models is in keeping with the complexities that underlie human behaviour and interpersonal interactions.

Figure 9 Mediated moderation model



Discussion and conclusion

Although the included studies assessed different attachment domains, used different scoring systems and measures, and explored a variety of outcomes, the overarching evidence was that attachment theory is a useful approach to exploring factors associated with client adherence following one-to-one interventions.

During the synthesis process evidence emerged that supported more complex models, rather than the more straightforward mediation and moderation models proposed in the theoretical formulation. In an attempt to tease out the complexities of the causal pathway and to explain how, when, and why clients are adherent, the synthesis process initially identified a series of simple models: moderator effects of client attachment style, moderator effects of client-provider relationship, and mediator effects of the client-providing relationship. The theoretical formulation was expanded and the principles of moderated mediation and mediated moderation were adopted to explain the complex interlinking of processes and explain how a sequence of events acts in combination to produce client adherence.

Using this theoretical concept we hypothesise that client adherence succeeds largely through the quality of the client-provider relationship, which enhances the ability of the provider and patient to work together towards a common health goal. This is supported by evidence from reviews and meta-analyses which have shown that this adult-to-adult relationship is a consistent predictor of health outcomes and patient adherence with treatment and therapeutic regimens (Martin et al., 2000, Kaplan et al., 1989). It is proposed that communication provides the conscious construct for this client-provider interaction. Adopting this psychodynamic formulation communication factors act via a conscious mechanistic pathway to improve the quality of this relationship, however, other unforeseen or unintentional mechanisims located within the provider and client have the potential to affect the quality of the interaction and the success of the one-to-one intervention. Therefore, it is postulated that unconscious as well as conscious determinants of behaviour must affect the provider-client interaction. We refined this theory by demonstrating that the effect of this relationship was enhanced or reduced by the clients own attachment style, which influences how they perceive and interact with the provider and the treatment provided. Therefore, if the client is securely attached, the benefits of a positive relationship

with the provider are greater, while if the client is insecurely attached, the benefits are reduced. Clients who are securely attached often have better relationships with the health care providers (Diener and Monroe, 2011, Smith et al., 2010) because securely attached adults have positive views of themselves and others which allows them to engage and connect effectively with people to build long-lasting relationships. On the other hand, insecurely attached adults have the tendency to have a negative view of themselves and those they come into contact with, making them distrustful of engaging effectively with the provider (Mikulincer et al., 2003; Bowlby 1951, 1969, 1973, 9180, 1988). In such cases the provider's own attachment style could interact with that of the client to modify the expected outcome. For example, a provider who is securely attached and responsive to the client's emotional needs can re-address the balance, and ensure that the insecurely attached client's anxiety and approach-avoidance behaviour is contained within the client-provider relationship and in this way the dynamic interplay between client and provider positively influences the therapeutic outcome (Dozier et al., 1999, Ciechanowski et al., 2001, Dozier et al., 1994). None of the studies included in this review assessed the provider's attachment style and therefore this model could not be explored further.

It is impossible to say if client adherence is chiefly determined by an overall modifying effect of the client's attachment style, which is then facilitated via the client-provider relationship (mediated moderation model); or if the effect of the one-to-one intervention is chiefly enabled via the client-provider relationship, which is then modified by the client's attachment style (moderated mediation model). Therefore, we proposed that these pathways were not mutually exclusive but are in fact "two sides of the same coin" (Muller et al., 2005).

Using these two models, by way of our refined theoretical formulation, we can hypothesise about how, when, and why clients are adherent. Client adherence with any one-to-one intervention is largely enabled by the relationship that the client has with the provider (*how*). This effect is amplified or diminished by the client's own attachment style (*when*). This occurs because the client's attachment style shapes how they perceive and behave in relationships with the health-care providers who become the 'secure base' (Bowlby, 1988) from which the client accepts, assimilates and adheres with the recommended health intervention (*why*).

We are aware that there are a host of other factors, not measured in the included studies, which could influence the mechanisms of action and the outcome. However, the work presented here starts to unpack the complexities of the psychodynamic factors that enable successful client adherence with one-to-one interventions and proves the need for providers to acknowledge and recognise that clients have different emotional and cognitive capabilities that influence their interactions with them. Recognising this will allow providers to tailor their care according to the client, especially those less inclined to cooperate with the health care provider. The client, the health care provider and the health care system as a whole suffer the consequences of poor adherence. These findings suggest that health care providers should be encouraged to understand client characteristics such as attachment style and use this to build better relationships which would then boost adherence.

In certain contexts the relationship between client attachment style and adherence may not be as straightforward or in the expected direction. In both examples, discussed previously, knowledge about attachment styles could prepare the provider to anticipate different adherence behaviours by clients, thus allowing them to tailor their interventions and increasing the likelihood of adherence.

Future studies should explore the role of the provider's own attachment style in influencing client adherence. Additionally, studies exploring the relationship of attachment style (client and provider) and client-provider relationships in the context of material deprivation, could improve the quality of care for those with increased needs.

Table 2 Studies included in the review

Study reference, design and subjects	**Population characteristics and study context**	**Details of study**	**Measures of attachment and patient-provider relationship.**	**Outcome measures**	**Results/ main findings**
Kiesewetter et al. 2012 Longitudinal design Clinical outcome trial 12 months duration Obese patients	Germany N=44 (F=40; M=4) Mean age = 52.3 ± 10.5 12 month weight reduction lifestyle intervention.	Influence of attachment styles/patient – provider relationship on long term success of life-style obesity interventions.	Adult Attachment Prototype Rating. German version (Strauss and Lobo-Drost, 1999). Semi structured interview. Secure, preoccupied dismissing types. Assessed at baseline. Helping Alliance Questionnaire German version (Luborsky et al., 1983; Bassler et al., 1995). Self-report by both patient and provider. Assessed after 3 group sessions.	Weight loss	1. Secure attachment greater weight loss than insecure attachment. 2. Secure patients more positive assessment of patient-provider relationship than insecure patients. Therapist agreement. 3. No significant relationship between weight loss and patient-provider relationship.
Ciechanowski et al. 2004 Cross sectional design Diabetic participants	USA N=4095 (F= 1981;M=2114) Mean age= 62.5 ± 13.7 Mail survey of all patients with diabetes from 9 primary care clinics.	Role of attachment styles and patient-provider relationship on self-management in diabetic patients.	Relationship Questionnaire (Griffin and Bartholomew 1994). Assessed secure, preoccupied, fearful and dismissing types. Adapted 3 items from a measure for assessing patient perception of provider support for self-management of bipolar	Diabetes self-care, smoking status, oral hypo-glycaemic adherence, glycaemic control.	1. Patients with dismissing attachment style more likely to have lower levels of exercise, foot care, healthful diet, more likely to smoke and be non-adherent with oral hypoglycaemic medications, but not glucose testing, compared to patients with secure attachment style. Patients with fearful attachment style less likely than patients with secure attachment style to exercise. Patients with preoccupied attachment style less likely to have poor glycaemic control compared with those with secure attachment style.

Study reference, design and subjects	Population characteristics and study context	Details of study	Measures of attachment and patient-provider relationship.	Outcome measures	Results/ main findings
			disorder (Ludman et al., 2002).		2. Greater patient-provider collaboration among those with secure attachment style compared to those with fearful and dismissing but not preoccupied attachment styles. 3. Greater patient-provider collaboration associated with better adherence to diet, exercise, foot care, oral hypoglycaemic medications, better glycaemic control and negative smoking status. 4. The patient-provider relationship mediated: a) relationship between dismissing attachment style and poorer adherence to health promoting behaviours. b) relationship between fearful attachment style and poor adherence to exercise. c) relationship between preoccupied attachment style and better glycaemic control.
Ciechanowski et al. 2001 Cross sectional design Diabetic participants	USA N=367 (F= 204; M=163) Mean age = 61.3 ± 11.9 Study took place in two primary care clinics.	Role of attachment style on adherence and whether the patient-provider relationship modified the attachment-adherence relationship.	The Relationship Scales Questionnaire, and the Relationship Questionnaire (Griffin and Bartholomew 1994). Assessed secure, preoccupied, fearful and dismissing types. The Patient Reactions Assessment (Galassi et al., 1992). Assessed patient-provider communication quality.	Variation in glucose control based on glycosylated haemoglobin	1. Patients exhibiting dismissing attachment had significantly higher glycosylated haemoglobin levels than did patients with preoccupied, secure and fearful attachment styles. 2. No significant association between patient - provider communication quality and glucose control. 3. Patients with dismissing attachment who perceived that poor quality communication with their provider had higher glycosylated haemoglobin levels than those with a dismissing attachment style who perceived their provider's communication good. No significant differences in glycosylated haemoglobin levels by communication quality in the patients with secure, preoccupied, or fearful attachment styles.

Study reference, design and subjects	Population characteristics and study context	Details of study	Measures of attachment and patient-provider relationship.	Outcome measures	Results/ main findings
Bennett et al. 2011 Cross sectional design SLE patients	USA N=193 (F= 188; M=5) Mean age = 42.51 ± 9.48 Online survey recruiting from lupus oriented, English language, websites.	Relationship between patient-provider relationship and attachment styles, and adherence, satisfaction, and health-related quality of life.	Experiences in Close Relationships Scale (Brennan et al., 1998). Assessed anxiety and avoidance. The Physician–Patient Alliance Inventory (Fuertes et al., 2007).	Adherence with treatment, satisfaction with care and health related quality of life.	1. Attachment anxiety and avoidance negatively correlated with adherence. 2. Participants who manifested lower attachment anxiety and lower attachment avoidance reported stronger relationship with their physician. 3. Strong positive correlation between the patient – provider relationship and adherence.
Meier et al. 2006 Longitudinal design Drug rehabilitation	USA N=187 (F=57; M=130) Median age= 29.6 Clients starting residential rehabilitation treatment for drug misuse in 3 UK services between August 2002-August 2003	Role of the (early) therapeutic alliance in predicting length of retention in residential drug treatment. Client attachment style treated as a confounder.	Modified version of the Relationship Questionnaire (Bartholomew and Horowitz, 1991). Assessed secure, preoccupied, fearful and dismissing types; at baseline. Modified short 12-item client and counsellor version of the Working Alliance Inventory (Tracey and Kokotovic, 1989). Assessed weekly, weeks 1 to 3.	Length of retention and treatment completion (90 days)	1. Secure attachment was associated with shorter retention (earlier dropout). 2. Study did not look at association between attachment and patient –provider relationship; rather they treated it as a confounder and not part of the causal pathway. 3. Counsellor rated alliance, but not the client rated alliance, significantly predicted length of retention.
Bliss 2009 Longitudinal	USA N= 59 (F= 39; M= 20)	PhD dissertation. Attachment, depression and	The Adult Attachment Scale (Collins, 1996). Assessed secure, avoidant	Change in pain severity, pain	1. Secure attachment positively correlated to patient adherence. 2. Secure attachment was positively related to the

Study reference, design and subjects	Population characteristics and study context	Details of study	Measures of attachment and patient-provider relationship.	Outcome measures	Results/ main findings
design Chronic pain patients	Mean age = 47.47 ± 14.14 Participants recruited at 4 outpatient physical therapy clinics in two cities.	working alliance examined as predictors of treatment outcomes in chronic pain patients receiving physical therapy.	and anxious/ambivalent types; at baseline. Short version (12 items) of the Working Alliance Inventory (Tracey and Kokotovic, 1989). Assessed 5 weeks from first visit.	interference, patient satisfaction with physical therapy services and adherence with treatment recommend-ations.	patient-provider relationship. 3. Patient-provider relationship was positively correlated to patient adherence. 4. Depression was found to be a mediator in the relationship between secure attachment and patient-provider relationship.
Smith et al. 2012 Longitudinal design Depression patients with a history of childhood sexual abuse	USA N= 70 (women) Mean age = 36.39 ± 9.86 Women seeking treatment in a community mental health centre who had Major Depressive Disorder and a childhood sexual abuse history.	Effects of attachment style and the patient-provider relationship on treatment outcomes among depressed women with childhood sexual abuse histories.	Experiences in Close Relationships scale (Brennan et al.,1998). Assessed avoidance and anxiety; at baseline. Working Alliance Inventory (Horvath and Greenberg, 1989). Assessed after third therapy session.	Change in depression scores. Number of sessions attended.	1. Patients with less attachment avoidance reported greater improvements in their depressive symptoms at the end of treatment. Attachment anxiety was not associated with changes in depressive symptom severity over time. 2. No association between attachment and patient-provider relationship. 3. Patients with more positive relationships with their therapists reported fewer depressive symptoms at treatment conclusion. 4. Mediation could not be assessed statistically as no relationship was observed between attachment and patient-provider relationship.
Byrd et al. 2010 Longitudinal naturalistic	USA N=66 (F=39; M=27) Mean age =22.66 ± 6.41	The patient-provider relationship was hypothesised to mediate	Attachment Scale–revised (Collins, 1996). Assessed comfort with closeness, comfort depending on others and	Patient progress in therapy.	1. Positive association between comfort with closeness and progress in therapy, and comfort depending on others and progress in therapy. No association between rejection anxiety scores and progress in therapy.

Study reference, design and subjects	Population characteristics and study context	Details of study	Measures of attachment and patient-provider relationship.	Outcome measures	Results/ main findings
design Students attending therapy for various problems	Data from an archival database of clients seen in an outpatient training clinic.	relationship between attachment style and psychotherapy outcome.	rejection anxiety; at baseline. Working Alliance Inventory–Short Form Revised (Hatcher and Gillaspy, 2006). Assessed after each therapy session.		2. Positive association between comfort with closeness and patient-provider relationship, and comfort depending on others and patient-provider relationship. No association between rejection anxiety scores and patient-provider relationship. 3. Positive association between patient-provider relationship and progress in therapy. 4. Patient-provider relationship partially mediated effect of comfort with closeness on progress in therapy and comfort depending on others and progress in therapy.
Reis and Grenyer 2004 Longitudinal design Severely depressed patients	Australia N=58 (F=34; M=24) Mean age = 45.98 ± 10.97 Clients receiving psycho-therapy for depression at an outpatient university clinic.	Examined links between adult attachment styles, patient-provider relationship and treatment response in clients receiving psychotherapy for major depression.	Relationship Questionnaire (Bartholomew and Horowitz, 1991). Assessed secure, preoccupied, fearful and dismissing types; at baseline. Working Alliance Inventory (Horvath and Greenberg, 1989). Assessed following third therapy session.	Change in depression scores over the course of therapy.	1. Individuals reporting high levels of fearful attachment showed less improvement. No significant associations between other attachment styles and treatment response. 2. Secure attachment associated with more positive ratings of the patient-provider relationship: dismissive attachment predicted more negative ratings of the patient-provider relationship. No relationship between fearful or preoccupied attachment and patient-provider relationship. 3. No significant relationship between patient-provider relationship and change in depression. 4. Patient-provider relationship not mediator in relationship between attachment and outcome.
Sauer et al. 2010 Longitudinal	USA N=95 (F= 65; M=30) Mean age = 27.71	Examined how attachment and patient-provider relationship	Experiences in Close Relationships Scale (Brennan et al., 1998). Assessed Avoidance and	Progress in therapy, changes in symptom	1. Neither attachment anxiety nor avoidance helped explain clients' distress levels across time. 2. Clients who reported stronger relationships with their providers reported greater reductions in

Study reference, design and subjects	Population characteristics and study context	Details of study	Measures of attachment and patient-provider relationship.	Outcome measures	Results/ main findings
design Clients receiving therapy	±11.39 Clients from 2 psychology training clinics at a university.	impacted on change in psychological distress across time.	Anxiety; at the third counselling session. Working Alliance Inventory Client version (Horvath and Greenberg, 1989). Administered at the third counselling session.	distress.	distress over time.
Ciechanowski and Katon 2006 Qualitative study Diabetic participants	USA N=27 (F=16; M=11) Mean age = 54.47±11.8 Patients with type 2 diabetes attending a university care centre.	Qualitative exploration of experiences of patients with type 2 diabetes in their interactions with the health care system in managing diabetes, while taking into account their attachment style and relationship with health care provider.	Relationship Questionnaire (Griffin and Bartholomew, 1994). Assessed secure, preoccupied, fearful and dismissing types; at baseline. Qualitative semi structured interviews to assess trust of health care providers and satisfaction with interaction with health care providers.	Patient health care utilization patterns including engagement, reluctance to seek care, leaving care, frequently changing providers, playing a 'role' or 'game' to tolerate care.	1. Patient attachment style and capacity to trust influenced health care utilization patterns. 2. Patients with secure attachment style more likely to trust providers and value on-going relationship, even if circumstances not ideal. Patients with fearful attachment style highly attuned to indications of rejection and patients with dismissing attachment style highly sensitive to being controlled. 3. Patients with dismissing and fearful attachment styles reported perceiving a power differential between providers and patients that threatened their ability to engage in the health care system. 4. Study observed that the attitude, clinical approach and behaviours of providers could potentially enhance capacity for patients with dismissing or fearful attachment style to trust or engage with the health care system.

2. Development of the CHATTERBOX intervention

Introduction

Families who are socio-economically disadvantaged often fail to take their children to the dentist, even when dental care is provided free of cost (Deas *et al.,* 2010; Ismail and Sohn, 2001; Maserejian *et al.*, 2008). Phase I of the DAPER project identified the concerns preventing young mothers living in Scotland from taking their children to the dentist (Chambers and Freeman, 2010). The barriers included feeling isolated from health services and perceiving the dental surgery as not a family friendly place. Mothers also found it difficult and expensive to travel with young children on public transport, and to manage their time efficiently. Mothers expressed feelings of depression such as feeling down, not wanting to do anything, and feeling miserable. Another common barrier was related to where families lived, this included not feeling settled in their homes, having difficult neighbours, and not being happy with where they were living (*Ibid*).

The literature revealed that a good relationship between the patient and health care provider, and support tailored to the specific needs of the patient greatly improves their health behaviours and makes them more likely to adhere to health care interventions or recommendations (Martin et al., 2000; Wanyonyi et al., 2011). Therefore, it was envisioned that by improving communication between DHSWs and families, DHSWs could identify concerns specific to the family and make assessments of how ready these families were to engage with the dental care available. This would allow DHSWs to tailor specific services and support around the needs of vulnerable families.

Aim

The aim was to develop a communication tool to facilitate parent-DHSW communication, so that the DHSWs could tailor support according to the dental-related concerns of the families and support parent-child dental attendance.

Development

Months of discussions between DHSRU and Duncan of Jordanstone College of Art and Design (DJCAD) lead to the development of a concept based around facilitating conversations through storyboarding. This would allow parents to gain a visual picture of their daily activities and talk about problems they felt were preventing them from taking their children to the dentist. The storyboard becomes a platform to help develop the parent's ability to identify, consider solutions and eventually solve their own problems. This aids the development of confidence and builds relationships between DHSWs and families. This mutual participation (Szasz and Hollender,1956) improves the family's likelihood of partnership working and attending for dental care.

The storyboard went through a series of iterations, user testing and stakeholder meetings and resulted in a uniquely designed toolkit, CHATTERBOX (Figures 10 to 13). At each stage of its development CHATTERBOX and its contents were piloted with parents and children.

Figure 10 Stakeholder meetings

Figure 11 Initial storyboard ideas

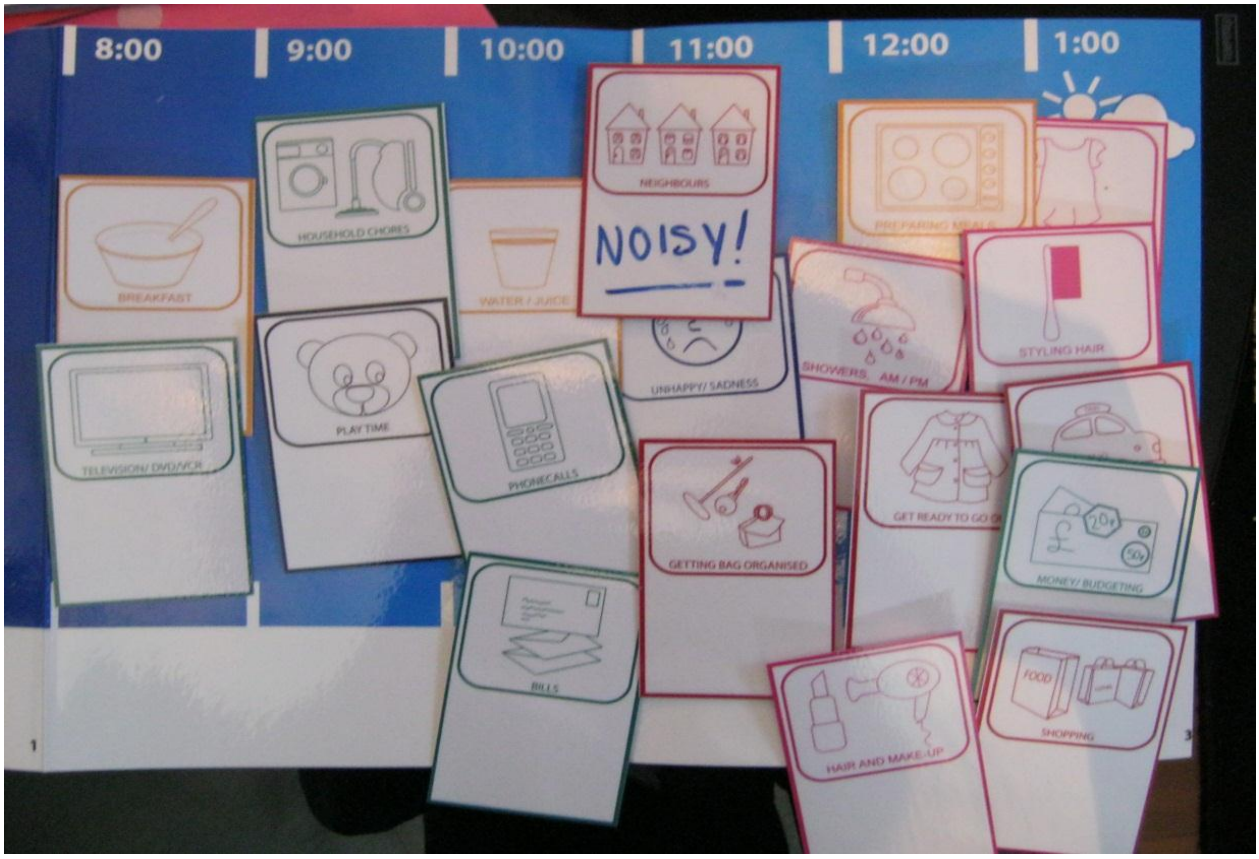
Figure 12 CHATTERBOX prototype for piloting

Figure 13 Final CHATTERBOX

Chatterbox consists of a set of bespoke tools: a timeline base, reusable activity cards, and appointment postcards (Figure 13). The activity cards are pictorial representations of common everyday activities that families engage in and of factors that were identified by parents in DAPER I as influencing families' dental attendance patterns. CHATTERBOX was piloted with three families with young children. Following this, blank cards and additional activity cards such as "musical beds" were added to the toolkit.

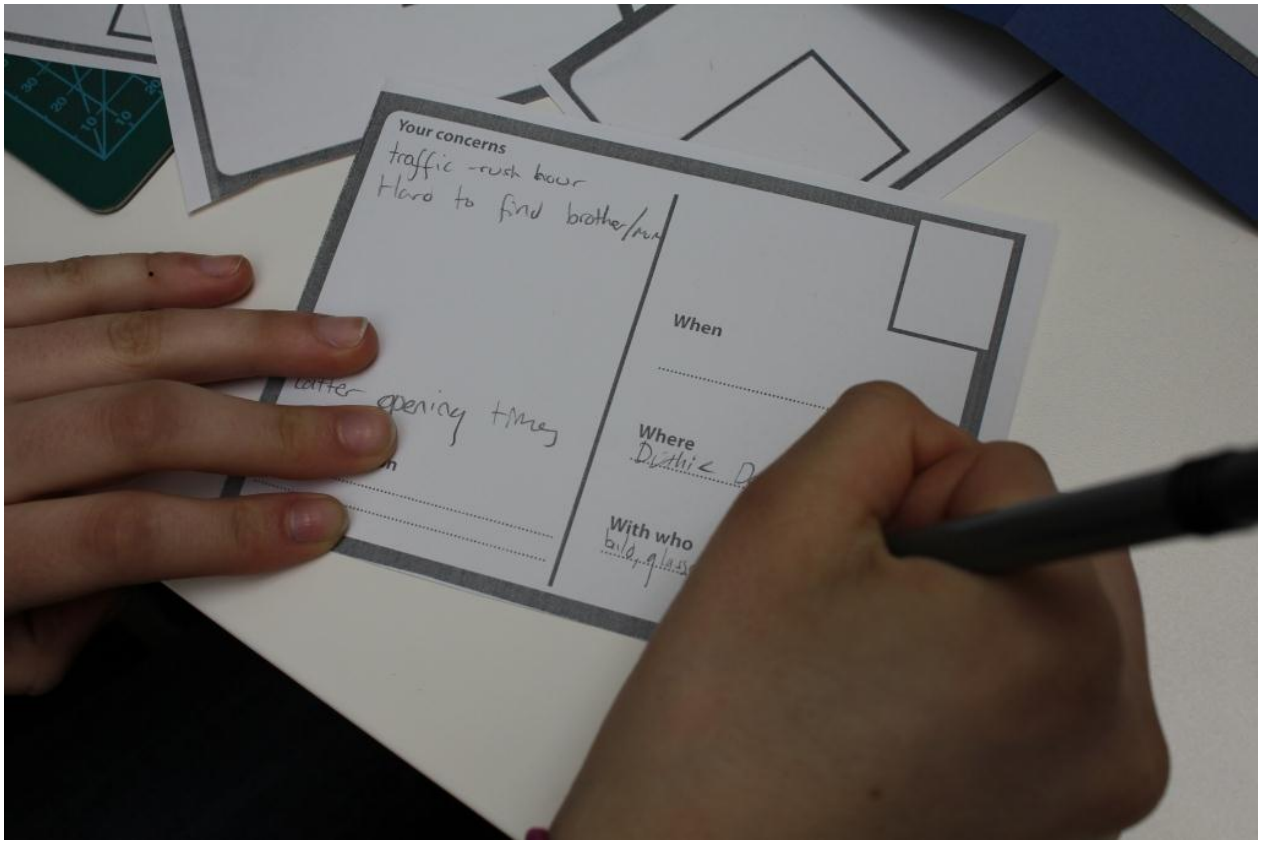
Seventy-two activity cards are separated into categories and colour coded to simplify selection. The remaining nine cards are blank, allowing for parents to create their own variations. Relevant activity cards are selected by parents and placed on the timeline base to construct a visual picture of an average day for each family (Figure 14).

Figure 14



The cards can also be used to talk about other issues relating to dental attendance such as transportation, childcare, social support available to the family, previous experiences with dental services, and other dental-related anxieties or concerns that families might have. This structured conversation using CHATTERBOX helps parents identify where, when and why problems occur when attending for dental care. It serves as a communication tool to help families voice their concerns and difficulties. The problems identified and solutions discussed are transferred onto the appointment postcards (Figure 15).

Figure 15



Each postcard serves as a record and a reminder of the next DHSW/Childsmile Practice appointment. The postcards are made unique to each family by having the child's foot/hand imprinted onto the front of the postcard. Parents who tried out CHATTERBOX felt that this served as an incentive for them to keep the postcard and the child's appointment. The timeline is photographed (Figure 14) and used as a platform to aid further discussion at subsequent visits.

3. Field trial of the PDCS using the CHATTERBOX intervention

Aim

The aim was to conduct a field trial of the PDCS using the communication tool (CHATTERBOX), to assist parents speak of their dental-related concerns.

Method

Study design

A single case study design with the outcome variable being child dental registration/ attendance. Comparisons were made between baseline and following the intervention.

Study population

Childsmile parents living in NHS Tayside and NHS Highland identified as having additional needs and referred to DHSWs [1] were invited to participate.

Inclusion criteria

Parents providing informed and written consent.

Parents living in NHS Tayside and NHS Highland who are visited in their homes by DHSWs to provide extra support to enable child registration and attendance at a Childsmile Practice.

Parents who have sufficient knowledge of the English language to communicate with the DHSWs.

Exclusion Criteria

Parents who do not provide informed and written consent.

Parents with learning disability.

Parents who are unable to communicate with the DHSWs in English.

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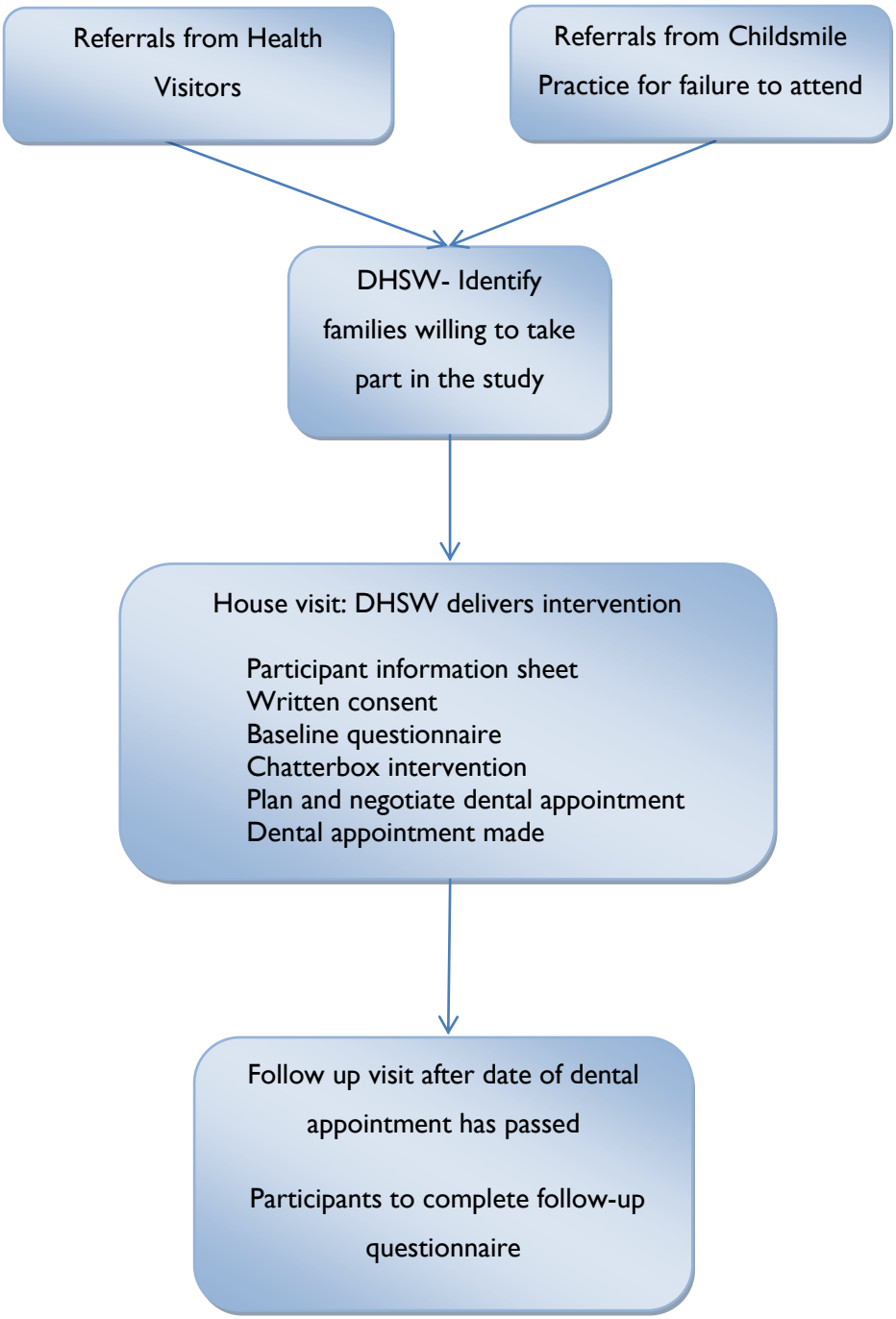
[1] All members of the oral health improvement team who participated in the study will be referred to as DHSWs for the sake of convenience and because the majority of the team involved in this intervention were Dental/Oral Health Support Workers.

Participant selection and enrolment

In NHS Tayside and NHS Highland all parents who were referred to the DHSWs by HVs or dental health professionals because of failure to register or attend Childsmile Practice were invited to participate (Figure 16).

Figure 16 Flow diagram of study



Ethical considerations

Ethical approval was obtained for the study from The East of Scotland Research Ethics Service (EoSRES) REC 2 (REC Reference No. 12/ES/0037) (Appendix 1). Management approval was obtained from NHS Highland and NHS Tayside R & D departments (NRSPCC ID: NRS12/GH51) (Appendix 2).

A couple of months into the study it became clear that process evaluation and qualitative exploration dimensions were necessary. A notice of substantial amendment was submitted to reflect these changes in the study protocol. This was approved by (EoSRES) REC 2 (Appendix 1) and R & D NHS Tayside and NHS Highland (Appendix 2).

Only those families who had consented to being contacted by Childsmile staff or staff working on their behalf, for the purposes of Childsmile evaluation were contacted. Participants were identified by the DHSWs who asked them if they were happy to participate in the study. Having read through the information sheet, participants were asked whether they wished to take part in the study. Those that wished to participate were asked to first sign a consent form.

Data collection

Study questionnaires

Data was collected using a baseline questionnaire and a follow-up questionnaire (Appendix 3). At baseline all parents were asked to complete the Parental Dental Concerns Scale (PDCS) to assess their dental-related concerns, the Dental Visit Satisfaction Scale (Corah *et al.,* 1984) to assess previous satisfaction with dental care, and the Client Satisfaction Questionnaire 8 (CSQ8) (Larsen et. al., 1979) to assess previous satisfaction with Childsmile service. In addition, parents' attachment pattern which was identified as being important in DAPER I (Chambers and Freeman, 2010; Chambers et. al., 2013), was assessed using the single item Relationship Questionnaire (Bartholomew and Horowitz , 1991). The questionnaires were self-complete, the DHSWs were available to answer questions and provide assistance if required.

After the date of the first dental attendance visit, all participating parents were asked to complete a follow-up questionnaire (Appendix 3) which contained the PDCS, the Dental Visit Satisfaction Scale and the CSQ8. The child's dental registration and attendance details were accessed via the DHSWs.

The CHATTERBOX intervention

If parents were willing to participate in the CHATTERBOX intervention after reading the Participant Information Sheet (PIS) given to them by the DHSW, they were requested to sign the consent form and complete the baseline questionnaire. Following which the DHSWs introduced CHATTERBOX to the family by laying out the contents of the box on a table or the floor.

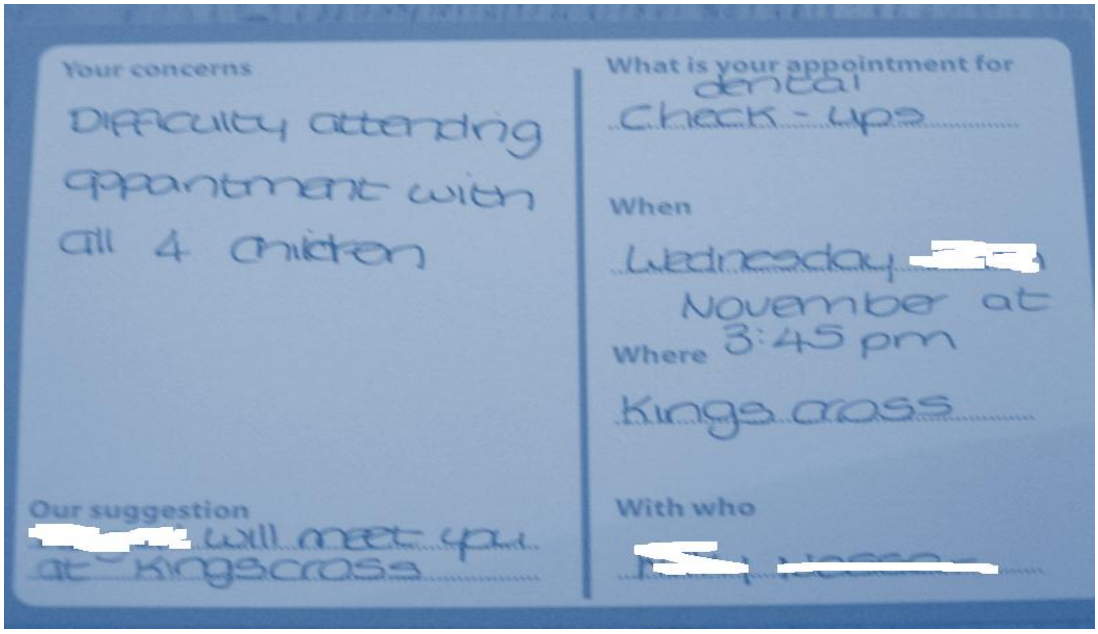
CHATTERBOX consists of a set of bespoke tools: A timeline base, eighty one re-usable activity cards and appointment postcards. Seventy two activity cards were separated into categories and colour coded to simplify selection. The remaining nine cards were blank, allowing for parents to create their own variations. The kit included a box of crayons and colouring pages which were given to the children to keep them occupied while the DHSWs engaged with the parents. Parents were asked to select relevant activity cards and place them on the timeline base to construct a visual picture of an average day for each family. Parents were encouraged to make comments or notes on the activity cards using the easy wipe markers available in the kit.

The DHSW initiated a structured conversation using the populated timeline to identify where, when and why problems occurred (Figure 17). The problems identified and solutions discussed were transferred onto the appointment postcards (Figure 18). Each postcard served as a record and a reminder of the next DHSW appointment/Childsmile Practice appointment. The postcards were made unique to each family by having the child's foot/hand imprinted onto the front of the postcard. This served as an incentive for the parent to keep the postcard. The timeline was photographed and used as a platform to develop upon in subsequent visits. The concerns and solutions identified by using CHATTERBOX were addressed by the DHSWs who provided tailored support. Taking the

needs of each family into consideration, the DHSWs negotiated and made appointments for the child with a Childsmile practice at a date, time and place suitable to the family, and continued to provide assistance up until the family attended the dentist. They continued to monitor the family to assess adherence and address any remaining concerns.

Figure 17

Figure 18



DHSW training for the CHATTERBOX intervention

The learning outcomes of the CHATTERBOX intervention workshop for the DHSWs were:

- To know the basic communication skills of questioning, active listening, explaining and goal setting.
- To be familiar with the principles of motivational interviewing and stages of change.
- To know the structure and application of the CHATTERBOX intervention.
- To know how to assess parental dental concerns using the CHATTERBOX intervention.

Training days were organised for the DHSWs in NHS Tayside and in NHS Highland before the start of data collection (Appendix 4). A training day for NHS Tayside was organised on the 21st of June 2012 and attended by four DHSWs and the Principal Childsmile Hygienist Tutor. A second training on 8th May 2013 was attended by ten members of the Oral Health Improvement Team, including the Principal Coordinator. The first training day in NHS Highland was on 3rd July 2012 and was attended by ten members of the Oral Health Improvement Team, including two Oral Health Improvement Coordinators and the Senior Dental Officer. The second training day on 7th March 2013 was attended by five DHSWs and two Oral Health Improvement Coordinators.

The first training days were full day events covering basic communication techniques and the principles of motivational interviewing (Miller and Rollnick, 2002) and stages of change (Prochaska and DiClemente, 1992). The DHSWs were introduced to the CHATTERBOX intervention. The second training days focussed on the use of CHATTERBOX to assess parental dental concerns, and to refresh data collection procedures for the DAPER III project. In brief, the participants were told that there was no right or wrong way to use CHATTERBOX as it could be tailored to suit each family. The DHSWs could discuss with the parent a typical day or a day that the appointment was missed and build a visual picture of that day on the CHATTERBOX timeline base using the activity cards. The cards could

also be used to discuss specific concerns that parents had about attending the dentist with their children. They were reminded that the purpose was to build a relationship with the family so that parents felt comfortable discussing their problems about attending the dentist, no matter how trivial or big. Finally, based on the principles of motivational interviewing (Miller and Rollnick, 2002) to increase the chances of parents changing their current behaviour, it was important to encourage parents to evaluate their own behaviour and identify their own solutions for improving their child's dental attendance (Appendix 4).

In addition, SN provided additional support to DHSWs by sending regular e-mails to all staff involved with DAPER III to ensure conformity of the data collection procedures, including ticking the CHATTERBOX 'box' in the HIC form for national Childsmile monitoring.

Data analysis

Questionnaire data

The data was coded and entered onto an SPSS data sheet. The data was subjected to frequency distributions and descriptive analysis.

Results

Descriptive data from the field trial of the PDCS

Referrals, participation and reasons for non-participation

Out of a total of 183 families referred to the DHSWs, ten parents participated in the CHATTERBOX intervention. Four lived in NHS Highland and six lived in NHS Tayside. Eight completed the baseline questionnaire and only three completed both the baseline and follow-up questionnaires (Table 3).

Table 3 Referrals, participation and reasons for non-participation

NHS Highland referrals, participation, reasons for non-participation		NHS Tayside referrals, participation, reasons for non-participation	
Referrals		Referrals	
Health Visitor referred for registration assistance	31	Health Visitor referred for registration assistance	117
Dental clinic referred for failing to attend	75	Dental clinic referred for failing to attend	26
Fluoride varnish team referred for dental treatment appointment	0	Fluoride varnish team referred for dental treatment appointment	3
Total referrals	106	Other	3
Families considered eligible for home visits as per normal protocol (Appendix 6)	**34**	**Total**	**149**
Participation		Participation	
Both questionnaires completed and CHATTERBOX used	1	Both questionnaires completed and CHATTERBOX used	2
Baseline questionnaire completed and CHATTERBOX used	1	Baseline questionnaire completed and CHATTERBOX used	3
Only CHATTERBOX used	2	Only baseline questionnaire completed, no CHATTERBOX	1
Total	**4**	**Total**	**6**
Reasons for non-participation		Reasons for non-participation	
Unable to be contacted	5	Unable to be contacted	17
language barrier	1	Language barrier	10
Registered following letter/phone call reminder	1	Registered following letter/phone call reminder	46
Moved out of area	1	Moved away/children taken to care	9
Declined to participate	2	Declined Childsmile help	7
Busy, requested appointments to be sent to the home, did not want a home visit from the DHSW	13	Attended dentist before CHATTERBOX intervention	18
Moving house	1	Already registered with own dentist at point of contact	27
learning difficulties	1	Chaotic/full house	5
Child attended with guardian	1	Families only requiring Oral Health Education - already registered	4
Family member took ill so couldn't keep study appointment	1		
Family repeatedly failed to attend, but after being asked to participate, refused, but started attending the dentist.	1		
Total	**30**	**Total**	**143**

Participants' demographic profile

Demographic information for eight participants who completed the baseline questionnaire is presented in Table 4. All eight participants were mothers. More than half of the participating families had three or more children living in the house. Nearly a third of the families lived in accommodation provided by the council/ housing association. Half the mothers were single and 85% had had up to secondary school education.

Table 4 Participants' demographic profile

N=8	**Frequency**	**Percentage**
Number of children at home		
1	2	25%
2	1	12.5%
3	1	12.5%
4	4	50%
Housing type		
Living in bought home	0	
Renting privately	3	37.5%
Renting from council/housing association	5	62.5%
Staying with family/friends	0	
Living in temporary housing	0	
Living status		
Married	0	
Living with partner	3	37.5%
In a relationship	1	12.5%
Single	4	50.0%
Divorced	0	
Widowed	0	
Education level		
Primary school	0	
Secondary school	6	85.7%
College	1	14.3%
University	0	
Still studying (college)	0	
Still studying (university)	0	
Missing	1	

Dental related factors

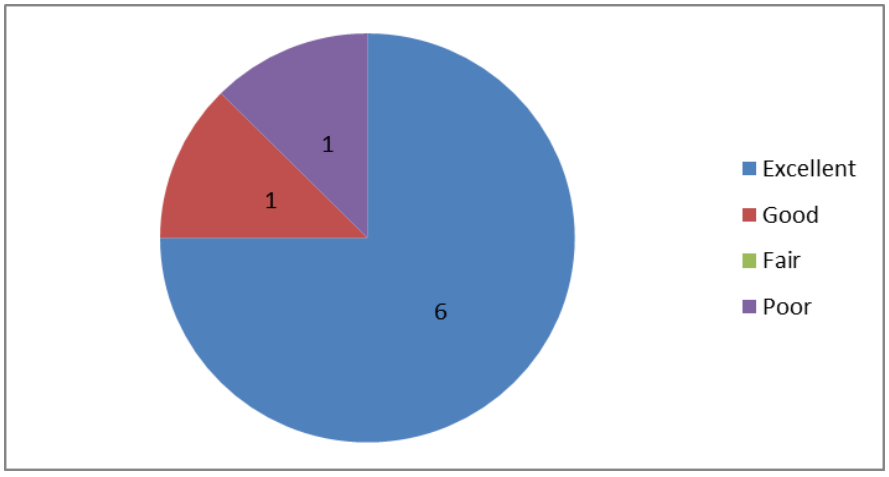
Nearly a third of the mothers thought that dentists were family friendly. Only one mother strongly disagreed. Over half (57%) reported that travelling to the dentist was easy and not expensive (Table 5).

Table 5 Dental related factors

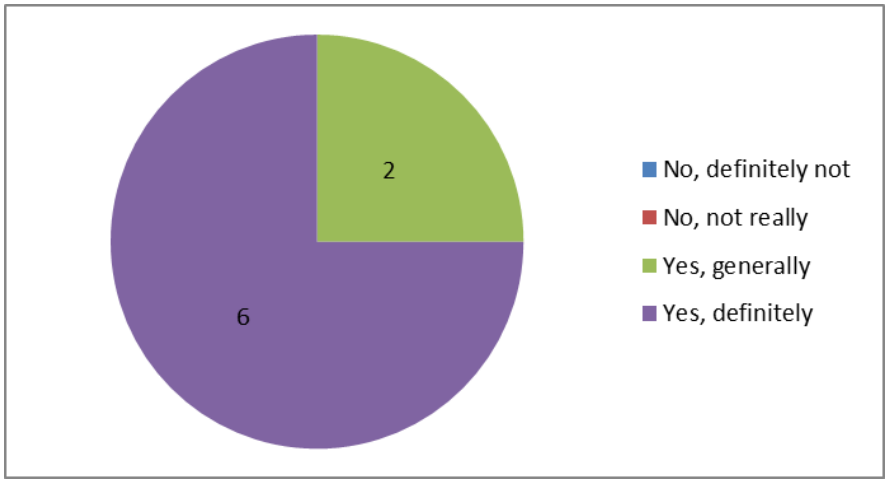
N=8	Frequency	Percentage
Dentists are family friendly		
Strongly disagree	1	12.5%
Disagree	2	25.0%
Neither agree or disagree	0	
Agree	0	
Strongly agree	5	62.5%
Travelling to the dentist is easy		
Strongly disagree	0	
Disagree	1	14.3%
Neither agree or disagree	1	14.3%
Agree	1	14.3%
Strongly agree	4	57.1%
Missing	1	
Travelling to the dentist is expensive		
Strongly disagree	4	57.1%
Disagree	2	28.6%
Neither agree or disagree	0	
Agree	0	
Strongly agree	1	14.3%
Missing	1	

Mothers' satisfaction with their previous experience with Childsmile is presented in the following pie charts. While a majority of the mothers thought that the quality of service from Childsmile was excellent, one mother thought it was poor. All the mothers said they got the service they wanted from Childsmile. Majority of the mothers felt that most or all their needs had been met by Childsmile and they would recommend Childsmile to a friend. All the mothers were satisfied with the help they received from Childsmile to get dental treatment for their child. Although most of the mothers said Childsmile helped them look after their child's teeth and gums, one mother said they seemed to make things worse. Similarly, one mother was dissatisfied with Childsmile overall while the others were satisfied. However, all mothers said they would go to Childsmile if they wanted help with their children's teeth.

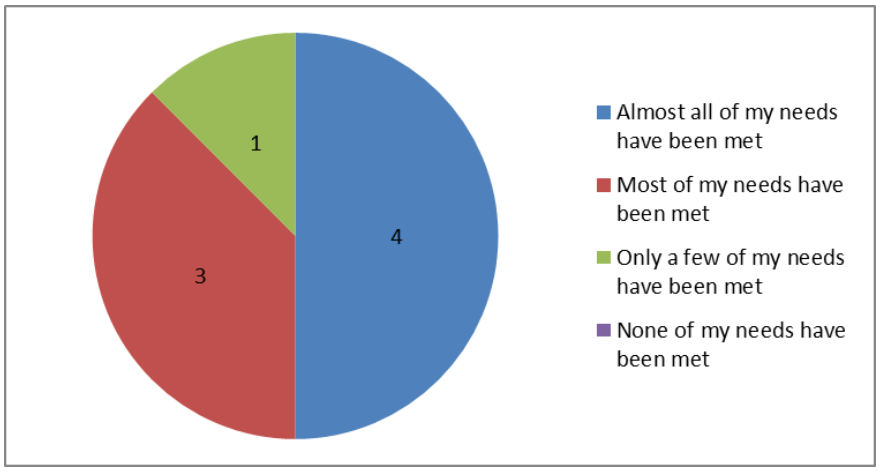
How would you rate the quality of service you received from Childsmile?



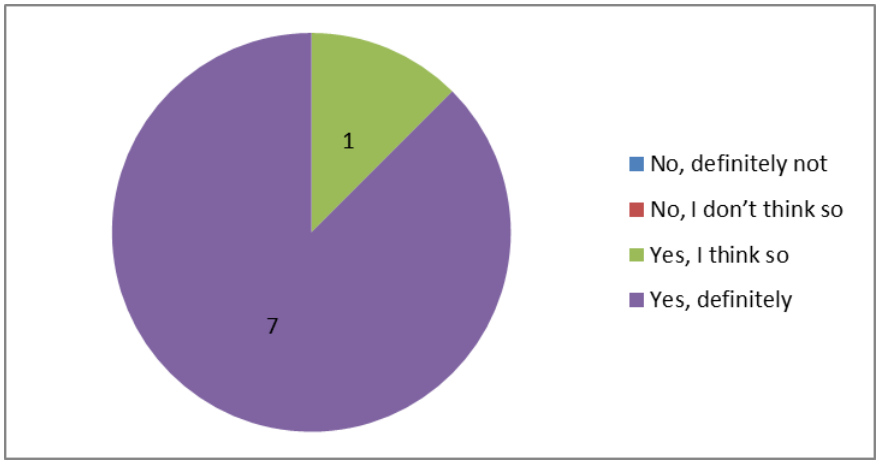
Did you get the kind of service you wanted?



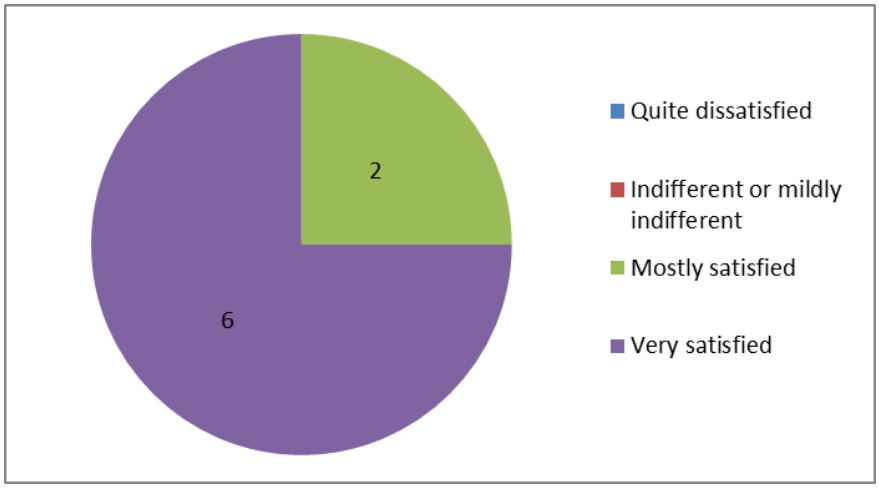
To what extent has Childsmile met your needs?



If a friend were in your situation, would you recommend Childsmile to them?



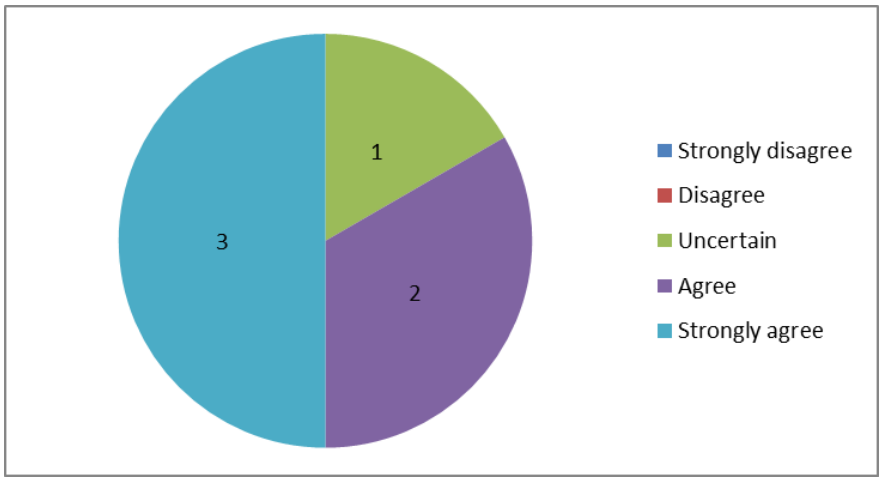
How satisfied are you with the help you received from Childsmile to get dental treatment for your child?



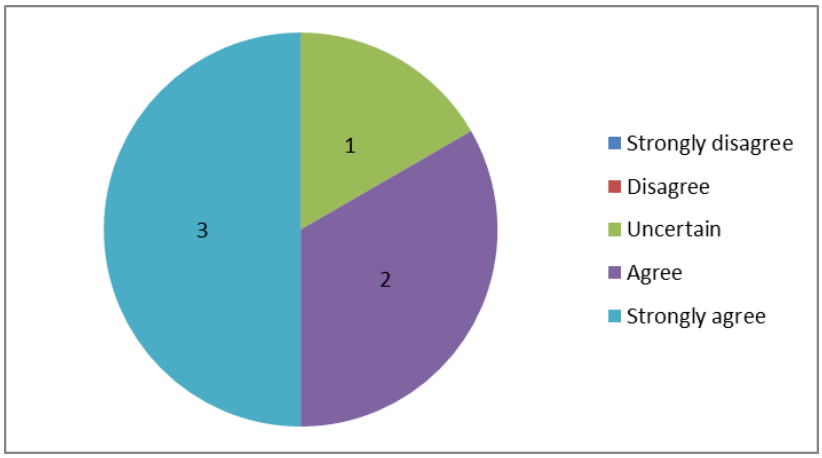
Six out of the eight respondents had previous experience visiting the dentist with their child/children; this information is presented in the following pie charts. Only one mother, after talking to the dental professional, was uncertain about the condition of her child's mouth and uncertain of the changes to expect in her child's dental health in the next few months. Over two thirds felt the dental professional told them all they wanted to know about their child's dental problem(s). Similarly, two thirds felt their child was understood by the dental professional. Half the mothers were uncertain that dental professional really knew how upset their child was about the possibility of pain. Majority of mothers felt the dental professional accepted their child as a person. Four mothers agreed that the dental professional was thorough in doing the procedure. Most of the mothers did not think the dental professional was too rough when he/she worked on their child. Similarly, most were satisfied with what the dental professional did and though that the dental professional seemed to know what he/she was doing during their child's visit.

Out of the six mothers who had previous experience visiting the dentist with their child/children, half said they took their older children to the dentist every six months and two reported taking them yearly.

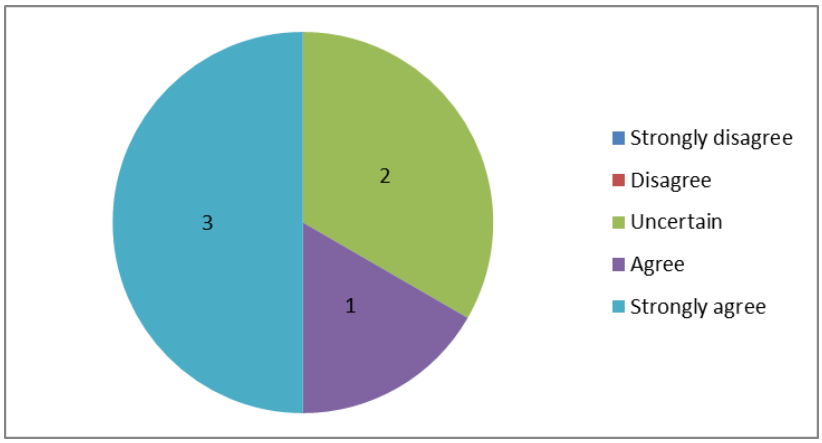
After talking with the dental professional, I know what the condition of my child's mouth is



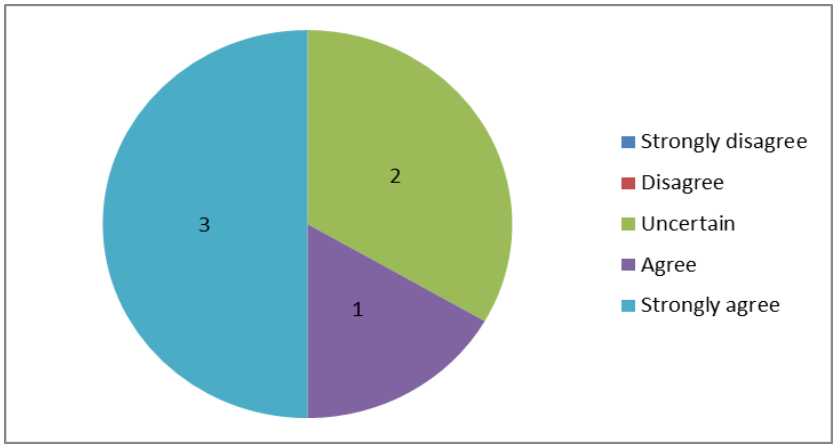
After talking with the dental professional, I have a good idea of what changes to expect in my child's dental health in the next few months



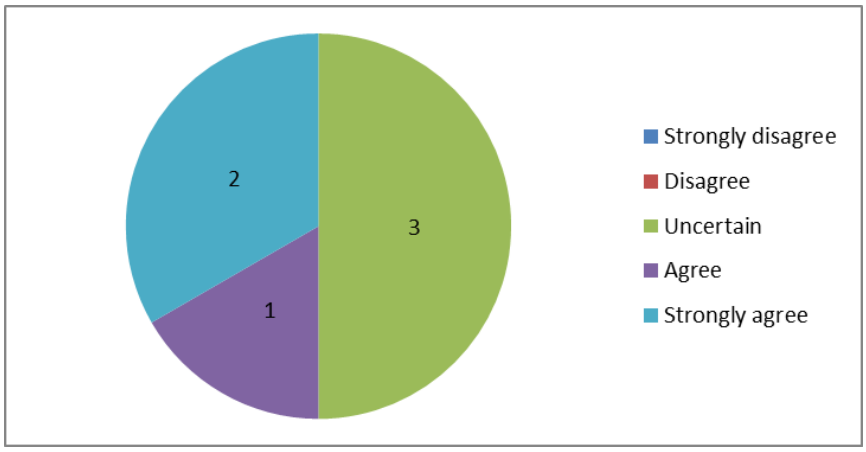
The dental professional told me all I wanted to know about my child's dental problem(s)



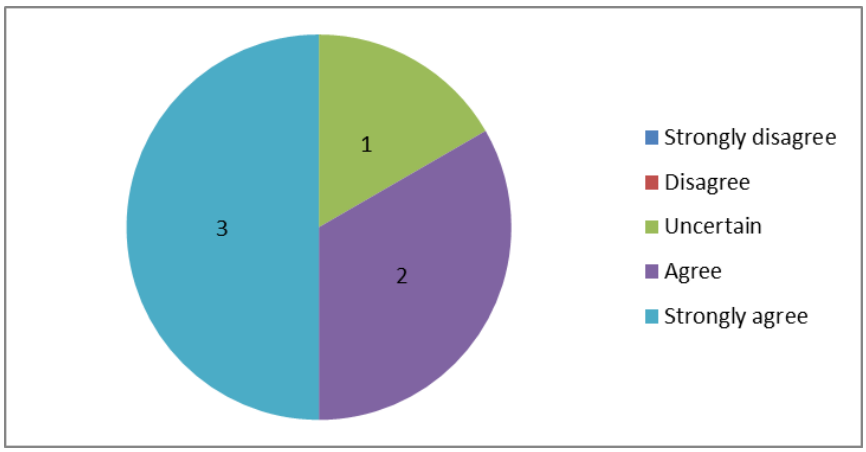
I really felt my child was understood by the dental professional



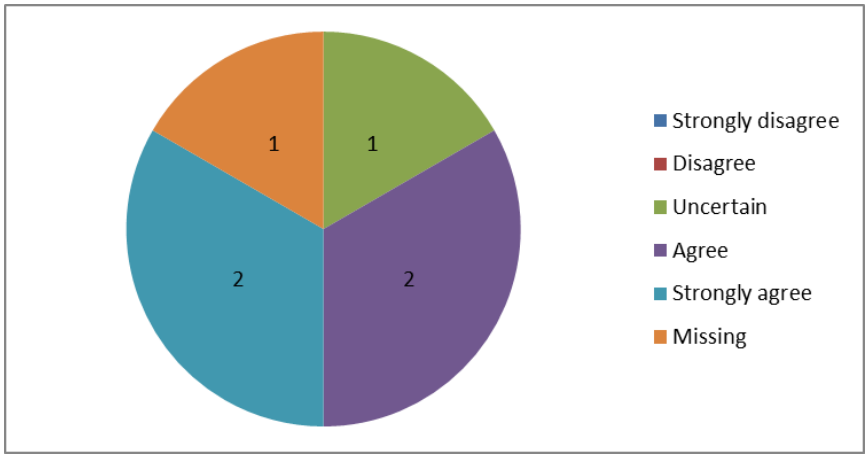
I felt that this dental professional really knew how upset my child was about the possibility of pain



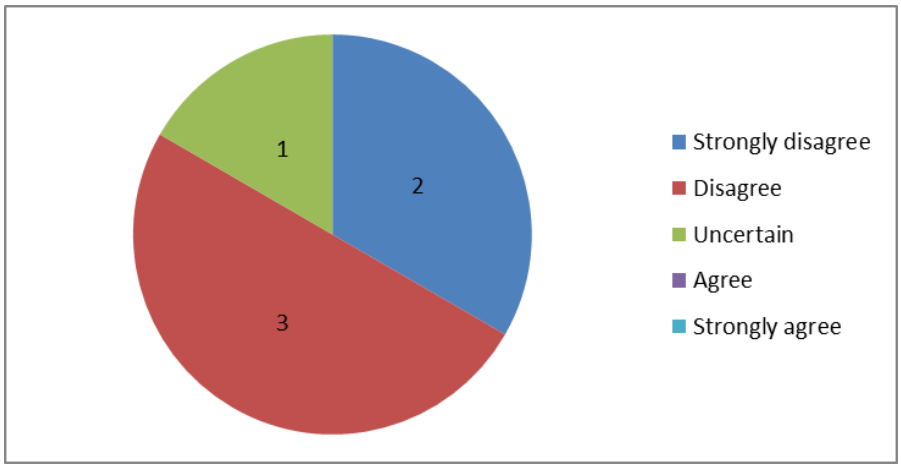
I felt this dental professional accepted my child as a person



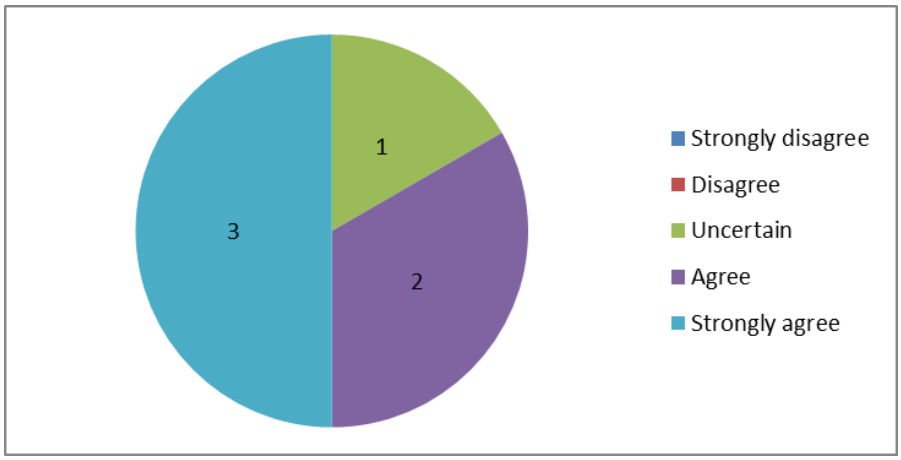
The dental professional was thorough in doing the procedure



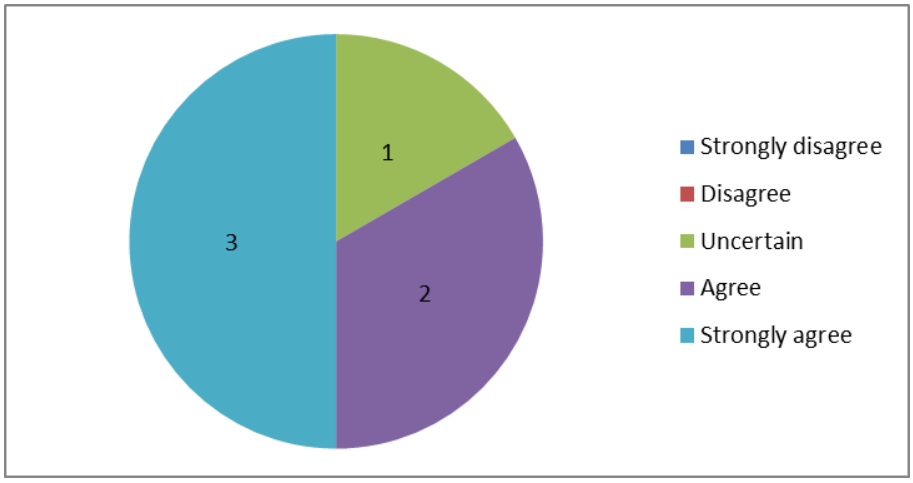
The dental professional was too rough when he/she worked on my child



I was satisfied with what the dental professional did



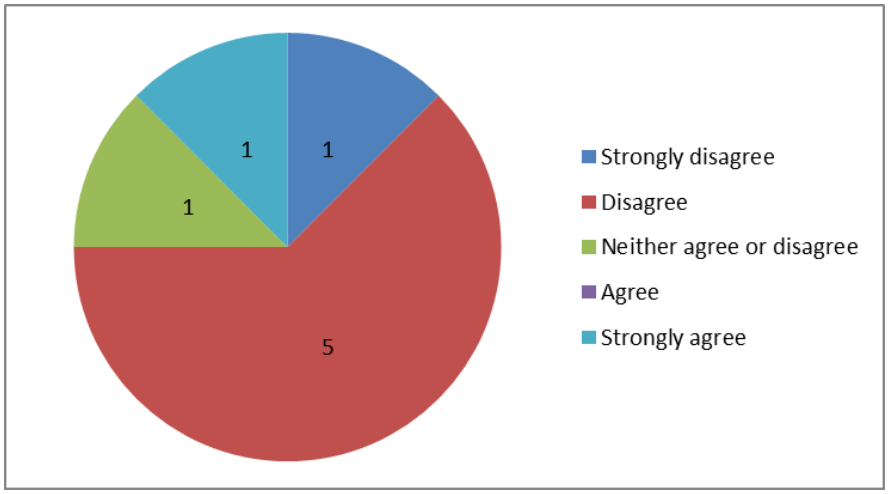
The dental professional seemed to know what he/she was doing during my child's visit



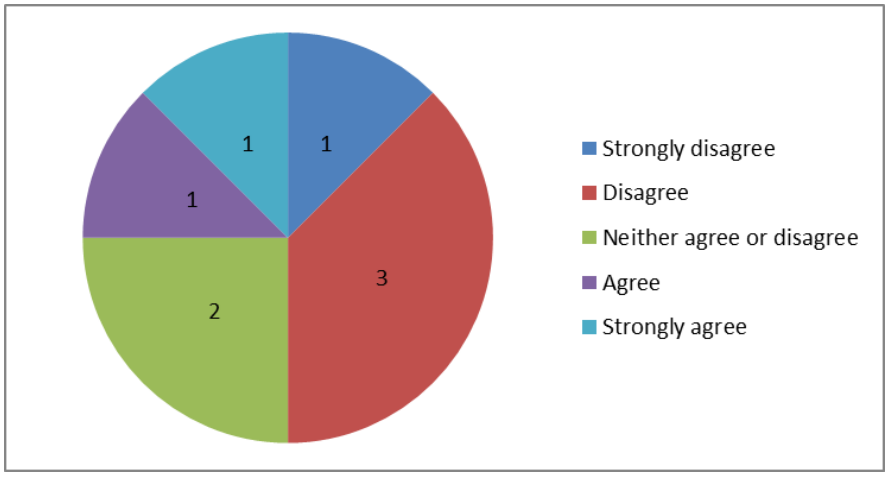
Parental exclusion factors

Information about parental exclusion, from eight mothers who completed the baseline questionnaire, is presented in the following pie charts. One mother felt down most days. Two mothers admitted that they did not feel like their usual selves since their children were born. Two mothers reported feeling miserable some days. Nearly a third of the mothers reported that they did not want to do anything and felt low spirited. Over half (n=5) the mothers reported being unhappy with where they were currently living, whereas three quarters said they felt settled in their homes. Three mothers found their neighbours difficult while half did not agree with this statement.

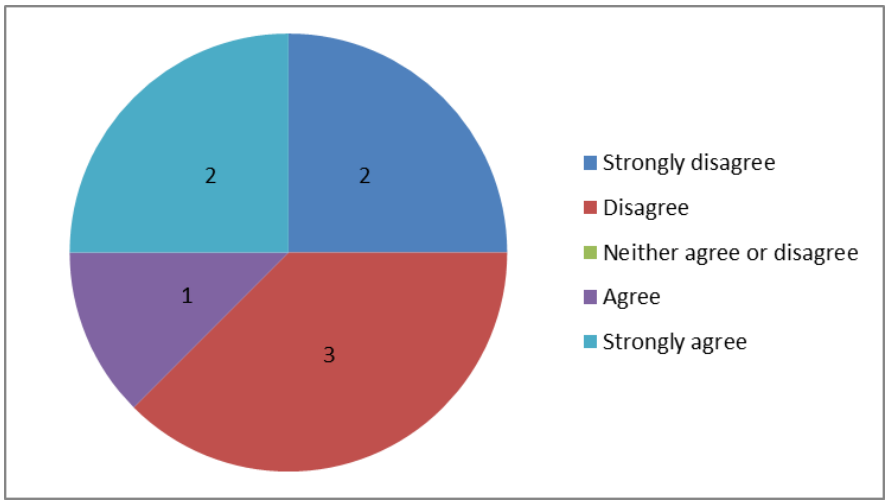
I feel down most days



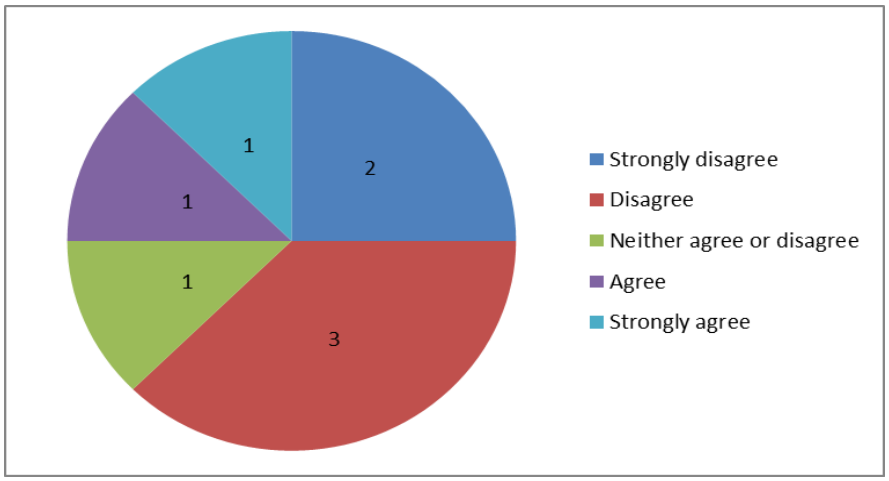
Since my child was born, I have not felt like my usual self



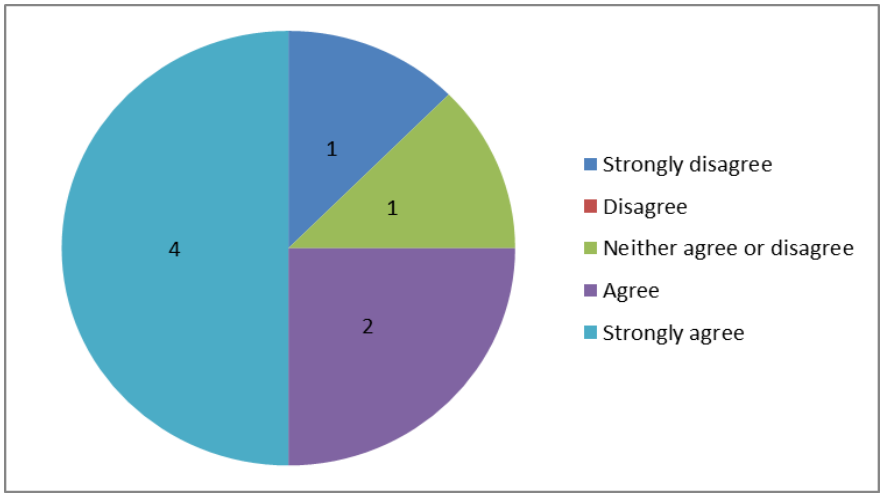
I am happy where I am currently living



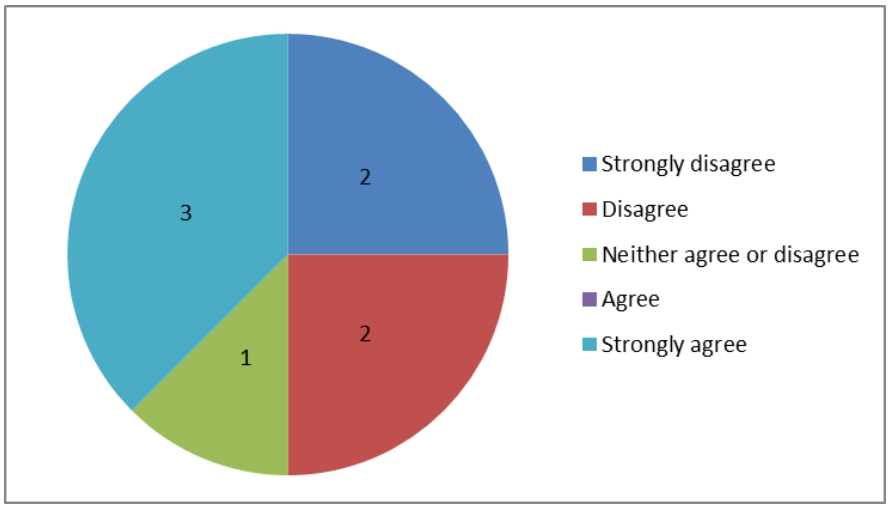
Some days I feel miserable



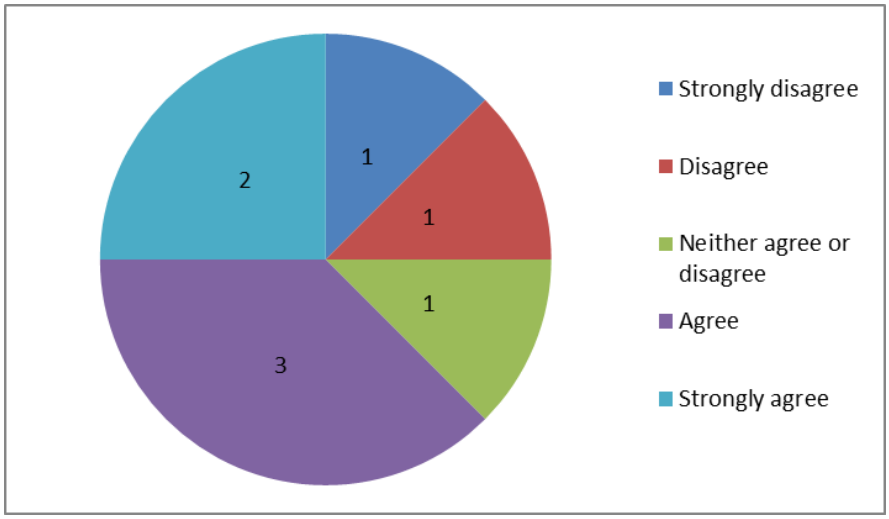
I feel settled in my home



My neighbours can be difficult



Some days I don't want to do anything



Attachment style

The attachment style of the mothers is presented in table 6. Majority (5) of the mothers reported having dismissing attachment, one had fearful attachment and two were securely attached.

Table 6 Participant's attachment style

N=8	Frequency	Percentage
Attachment style		
Secure	2	25%
Fearful	1	12.5%
Preoccupied	0	
Dismissing	5	62.5%

Study outcome: Child dental attendance following the CHATTERBOX intervention

Information about dental registration/attendance following the CHATTERBOX intervention is presented in Table 7. Ten mothers participated in the CHATTERBOX intervention. Overall 60% of the mothers took their children to the dentist after receiving the CHATTERBOX intervention. Looking at dental attendance in each NHS Board, all four mothers who received the intervention in NHS Highland took their children to the dentist, while only two out of six in NHS Tayside attended the dentist with their children following the intervention.

Table 7 Child dental attendance following the CHATTERBOX intervention

	Attended	Did not attend
NHS Board		
NHS Highland (N=4)	4 (100%)	0
NHS Tayside (N=6)	2 (33.3%)	4 (66.7%)
Total (n=10)	6 (60%)	4 (40%)

Summary

Ten mothers participated in the CHATTERBOX intervention. Four in NHS Highland and six in NHS Tayside. All four mothers in NHS Highland attended the dentist with their child following the CHATTERBOX intervention, while only two out of six in NHS Tayside took their child to the dentist following the intervention. Eight mothers completed the baseline questionnaire. Majority of the mothers reported that dentists were family friendly and travelling to the dentist was easy and not expensive. All except one mother reported satisfaction with the service they received from Childsmile. Two mothers reported feeling low spirited, one reported feeling depressed most days, two reported not feeling like their usual self and five were unhappy with where they were living. Five out of eight mothers had dismissing attachment styles, only two were securely attached and none had a preoccupied attachment style.

4. Process evaluation of the CHATTERBOX intervention

Introduction

DHSWs have a key role in supporting vulnerable families' access dental care for their children. They are responsible for liaising with families, public health nursing teams and dental practices. The programme manual for Childsmile staff (2012) describes their role as community workers who have long term relationships with vulnerable families, starting from when the child is three months old. The DHSWs advise families on caring for their child's first teeth, assist them in finding and registering with a local Childsmile Practice, and provide additional home support, as well as support with subsequent dental practice visits if required. For DHSWs to engage actively as community workers, any anxieties associated with working with vulnerable families in their homes have to be identified and addressed before the DHSWs can be expected to participate fully and build relationships with vulnerable families in the community.

Background

The DHSWs were included in DAPER III, whose aim was to conduct a field trial of the Parental Dental Concerns Scale (PDCS) to identify parents' dental concerns and assess if a tailored intervention by DHSWs would enable them to access dental care for their child. This involved the use of CHATTERBOX as a communication aid to assist the DHSWs identify concerns which prevented parents from taking their children to the dentist.

The DHSWs were trained in the use of CHATTERBOX and in basic communication and motivational interviewing techniques (Appendix 4). At the time of the initial training, the DHSWs stated that CHATTERBOX was a "*good tool for getting further with families when they are resistant*" and "*the CHATTERBOX contents look exciting and would easily engage a family*". There were also some concerns. The DHSWs were concerned that by using CHATTERBOX to aid communication, they would uncover other reasons for irregular dental attendance such as domestic violence or child abuse.

In September 2012 only one family had been recruited into the study since data collection started in June 2012, within one NHS Board. The DHSWs reported that they were too busy with school visits for fluoride varnishing, completing the necessary paperwork, they

had very few referrals for home visits for Childsmile Practice, and they were understaffed. Consequently, the DHSWs felt they had no time for Childsmile Practice home visits which they did not consider a priority.

Aim

The aim of this qualitative exploration was to investigate the impact of individual and organisational factors upon DHSWs' engagement with vulnerable families and the CHATTERBOX intervention.

Method

Data collection

In depth interviews were conducted with Childsmile staff and dentists from the Public Dental Service. The dates, times and venues for the interviews were based on staff convenience. The interviews were audio-recorded. Audio files were treated as confidential and stored on a password-protected PC and destroyed after the end of the study. Before commencement of the evaluation, Childsmile staff were given an information sheet about the evaluation and asked to sign a consent form.

Topics for discussion included what had been achieved so far, referral pathways, thoughts about home visits and experiences using CHATTERBOX. In addition, topics based on the domains of the Theoretical Domains Framework (TDF) (Michie *et al.,* 2005; Crane *et al.,* 2012) were introduced to identify key theoretical domains relevant to the behaviours of the DHSWs in implementing the CHATTERBOX intervention. At later stages, the discussions were built on previous dialogues and focused on specific areas highlighted in previous sessions. Data saturation occurred after two rounds of focus groups in NHS Tayside and two rounds of interviews in NHS Highland.

Data analysis

Implementation of any evidence based practice is dependent on the attitudes and behaviours of the healthcare workers, which in turn is influenced by individual and organisational factors such as individual capability and motivation, clarity of roles and the culture of the specific healthcare organisation (Crane *et al.,* 2012). Therefore, in-depth interviews with the Childsmile staff involved in DAPER III were conducted and the interviews were analysed using the TDF (Michie *et al.,* 2005; Crane *et al.,* 2012) which provided a theoretical base for understanding the behaviours of DHSWs in the implementation of the CHATTERBOX intervention.

The TDF (Michie *et al.,* 2005; Crane *et al.,* 2012) is based on theories of behaviour change and was developed to assess behavioural problems that impact implementation of any health care intervention by health workers. It has been validated across different health care systems (Michie *et al.,* 2005; Crane *et al.,* 2012). The TDF consists of 14 domains: knowledge, skills, social/professional role and identity, beliefs about capabilities, optimism, beliefs about consequences, reinforcement, intentions, goals, memory, attention and decision processes, environmental context and resources, social influences, emotions and behavioural regulation (Table 8). This list covers a wide-range of possible influences on behaviour, not all domains were relevant to the implementation of the CHATTERBOX intervention by DHSWs.

SN and RF met after they had independently examined the qualitative data. At these meetings the emerging themes based on TDF were discussed. Instances where discrepancies occurred discussions took place to reach agreement, ensuring that the analysis was credible and trustworthy.

Table 8 The Theoretical Domains Framework - a framework for understanding influences on professional-related behaviour (Crane *et al.,* 2012).

Domain	Constructs
1. Knowledge (An awareness of the existence of something)	Knowledge (of condition /scientific rationale) Procedural knowledge Knowledge of task environment
2. Skills (An ability or proficiency acquired through practice)	Skills Skills development Competence Ability Interpersonal skills Practice Skill assessment
3. Social/Professional Role and Identity (A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting)	Professional identity Professional role Social identity Identity Professional boundaries Professional confidence Group identity Leadership Organisational commitment
4. Beliefs about Capabilities (Acceptance of the truth, reality or validity about an ability, talent or facility that a person can put to constructive use)	Perceived competence Self-efficacy Perceived behavioural control Beliefs Self-esteem Empowerment Professional confidence
5. Optimism (The confidence that things will happen for the best or that desired goals will be attained)	Optimism Pessimism Unrealistic optimism Identity
6. Beliefs about Consequences (Acceptance of the truth, reality or validity about outcomes of a behaviour in a given situation)	Beliefs Outcome expectancies Characteristics of outcome expectancies Anticipated regret Consequents
7. Reinforcement (Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus)	Rewards (proximal / distal, valued / not valued, probable / improbable) Incentives Punishment Consequents Reinforcement Contingencies Sanctions

8. Intentions (A conscious decision to perform a behaviour or a resolve to act in a certain way)	Stability of intentions Stages of change model Trans theoretical model and stages of change
9. Goals (distal / proximal) (Mental representations of outcomes or end states that an individual wants to achieve)	Goal priority Goal / target setting Goals (autonomous / controlled) Action planning Implementation intention
10. Memory, Attention and Decision Processes (The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives)	Memory Attention Attention control Decision making Cognitive overload / tiredness
11. Environmental Context and Resources (Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence and adaptive behaviour)	Environmental stressors Resources / material resources Organisational culture /climate Salient events / critical incidents Person x environment interaction Barriers and facilitators
12. Social influences (Those interpersonal processes that can cause individuals to change their thoughts, feelings or behaviours)	Social pressure Social norms Group conformity Social comparisons Group norms Social support Power Intergroup conflict Alienation Group identity Modelling
13. Emotion (A complex reaction pattern, involving experiential, behavioural and physiological elements, by which the individual attempts to deal with a personally significant matter or event)	Fear Anxiety Affect Stress Depression Positive / negative affect Burn-out
14. Behavioural Regulation (Anything aimed at managing or changing objectively observed or measured actions)	Self-monitoring Breaking habit Action planning

Results

Description of participants and focus groups

The first focus group session in January 2013 with eleven members of the Oral Health Improvement Team in one NHS Board. Four of the DHSWs had attended the first CHATTERBOX training session in June 2012. The second focus group towards the end of the study period in June 2013 had nine participants. Five members of the team had used CHATTERBOX with families they had visited.

Four DHSWs were interviewed in the second NHS Board in April 2013 following the second training session in March 2013 and the start of data collection in April 2013. All were Childsmile DHSWs who had attended the training days and three had experience using CHATTERBOX with families they had visited. The fourth went on sick leave just as data collection began so was not interviewed a second time. A final round of interviews was conducted with each of the three DHSWs who had used CHATTERBOX, after data collection ended in July 2013.

One-to-one discussions were held with four members of the Public Dental Service in September and October 2012 to discuss organisational issues raised by DHSWs, such as referral pathways.

Findings from in-depth interviews with the DHSWs

This part of the results will present the factors that influenced the DHSWs' engagement with vulnerable families using the CHATTERBOX intervention. The findings are divided into [1] Individual factors (Table 9) and [2] Organisational factors.

Table 9 Mapping the DHSWs' capability, opportunity and motivation in engaging with vulnerable families using CHATTERBOX, to the domains of the TDF (Adapted from Crane et. al., 2012)

COM-B	TDF domain	Domain constructs
Capability	Knowledge	Knowledge and opinions on home visits Knowledge of CHATTERBOX and length of home visit Opinions about CHATTERBOX paperwork DHSWs' perceptions about CHATTERBOX
	Skills	Competence to handle parental concerns Ability to handle home visits and use CHATTERBOX
	Decision making process	Anxieties about what will be uncovered Families' previous behaviours
Opportunity	Access	Access to families in their homes
	Communication with colleagues	Communication with HVs Communication with dental practices
	Professional role and identity	Perceived professional identity and role Perceived social identity Professional boundaries Professional confidence Group identity Organisational commitment
	Environmental context	Potential for violence Parental engagement Parents' attitudes
Motivation	Beliefs about consequences	Outcome expectancies Consequences
	Reinforcement	Rewards (proximal/ distal; valued/not valued; probable/ improbable) Incentives Emotions

[1] Individual factors

Health professionals' behaviours occur as a result of the interaction between capability, opportunity and motivation (COM-B) (Michie et. al., 2011). Therefore, relevant domains of the TDF were used to explore various influences on the DHSWs' capability, opportunity and motivation to deliver the CHATTERBOX intervention (Table 9). The nature of the findings is such that influences on behaviour often overlap into related TDF domains.

Knowledge and opinions

The DHSWs' knowledge of what the CHATTERBOX intervention involved, housed within Childsmile Practice, influenced how capable they felt about delivering the intervention. This included their [i] knowledge and opinions on home visits in general and what this could entail, [ii] knowledge of length of CHATTERBOX home visit, [iii] opinions about CHATTERBOX paperwork and [iv] initial perceptions about CHATTERBOX.

[i] *Knowledge and views about home visits:*

Knowledge of what the home visit would entail was influenced by the level of effective communication between DHSWs and Health Visitors (HVs). The DHSWs stated that sometimes the HVs failed to include important information about families in their communications, such as *"why the family was referred"*. DHSWs also spoke of HVs failing to update the DHSWs when families had moved house or changed telephone numbers. Often DHSWs were not given background information about families they had to visit, such as incidences of domestic violence or child protection issues.

> *No we don't get any information of why they've been referred. But what worries me is child protection issues. We have no clue, we just go in. (DHSW 20)*

The impact of poor communication and information sharing, together with their anxieties, compounded the DHSWs' ambivalence with regard to home visits. DHSWs therefore had mixed views about visiting families in their homes. On the one hand they stated that it was good for the more vulnerable families to get an opportunity to engage one-on-one with the DHSWs and get individualised support.

I think the home visits are good because we can do a one-to-one with them. When we register children in the baby clinic you don't have that long time, and sometimes parents don't like to ask questions in front of other mothers because they don't want to look stupid or think maybe I should know that and they are aware that other people are listening in. So, you tend to find if you do visit they will ask you more questions and they will engage better. (DHSW 10)

But on the other hand, they had reservations about going into a family home especially if they perceived that they were not expected or wanted.

I wouldn't feel comfortable….(DHSW 35)

..most of the folk we go to see haven't actually asked to see us, somebody else has requested we go in, so maybe we are not quite as welcome as we might be if they thought somebody was going to be giving them something that they were looking for help with. (DHSW 11)

I feel like if they don't want us there, then they shouldn't be forced into us coming there because they are just not going to listen… (DHSW 30)

Therefore, lack of information resulted in DHSWs being anxious and *"on guard"* when they visited a family at home as *"we never know what we might walk into"*. Anticipatory anxiety, due to lack of communication and appropriate information, fed their ambivalence and influenced their capability and their motivation to engage with the CHATTERBOX intervention and the families referred to them.

[ii] *Knowledge of length of CHATTERBOX home visit:*

When DHSWs perceived that a CHATTERBOX visit would be lengthier than a usual house visit they preferred to deliver their routine oral health message rather than the more time consuming CHATTERBOX intervention. The following vignette is illustrative, showing that when DHSWs were unsure of their welcome in the family home they were concerned about lengthening their interaction with parents.

.. sometimes I think there is a fine line between, we try and use it [CHATTERBOX] *and run the risk of alienating the family or do we just make the most of the inroad that we've got just now and just try and get them to go* [to the dentist]*…you know, when you've had to try three different things to actually get into the house, then you think if I just show them this* [CHATTERBOX] *they're just going to run a mile… (DHSW 27)*

[iii] *Opinions about CHATTERBOX paperwork:*

The paperwork which was part of the study data collection garnered mixed reactions from the DHSWs. Some DHSWs said they felt more capable of getting clients to complete the questionnaires, rather than to engage them with CHATTERBOX.

If we had to just fill in the questionnaires, that's less intimidating for people [DHSWs] *than saying can you get this box out. (DHSW11)*

Conversely, other DHSWs stated that it was easier to get parents to engage with CHATTERBOX if they did not have to complete questionnaires. Especially when parental literacy was a concern, questionnaires were seen as a barrier and CHATTERBOX as a facilitator to parents' participating in DAPER III.

I find the paperwork to be a bit off putting …it's not complicated, but for some families it is quite an effort to read something like that. I think it looks so official and a lot of families don't engage well with services. I think that can be a bit of a barrier…especially when literacy is an issue as well. (DHSW 27)

They don't want to document anything and I think that possibly is what put them off. I think it's the physically writing down of things that they don't want to do, incriminate themselves in some way. I'm not sure but it seems to put them off. (DHSW 10)

These comments from the DHSWs illustrate the importance of using pictorial representations of dental-related concerns where literacy and health literacy is a concern.

[iv] DHSWs' *initial perceptions about CHATTERBOX:*

Initial perceptions of CHATTERBOX once more highlight the ambivalence experienced by DHSWs. For instance, some DHSWs stated that they thought CHATTERBOX would be too cumbersome to use, especially in overcrowded or chaotic households.

> *I think it may be too cumbersome. Some of the homes we go into, there is no space to sit. I just think there is nowhere to put it. It's too big. I think. It's a good idea, we all know that we like the idea, but it's too big for what we do. (DHSW 20)*

Others said "*the size* [was] *fine*" and they would have no problem laying the time line out on a table or on the floor if necessary.

> *…really, its fine to do it on the floor. (DHSW 10)*

> *I thought it was easy enough to use, it was easy to understand. I didn't have a problem with it. (DHSW 30)*

Skills

The DHSWs' perception of their skills influenced their capability to deliver the CHATTERBOX intervention. The DHSWs were once more mixed in their opinions about their skills and their competence using CHATTERBOX. Some stated that CHATTERBOX would be more useful to social workers and HVs, while others felt happy to have it at hand to use on house visits with selected families.

> *My feeling probably is that the tool would be best suited to the health visiting team. They have a much more, you know, long term commitment with these families, they have a much more holistic role…(DHSW43)*

> *I don't think I would be anxious about it. It* [CHATTERBOX] *is different, but you know I think I am confident enough that I'd be happy enough to use it. (DHSW 90)*

Nonetheless, despite these mixed opinions the DHSWs were confident in their ability to deliver oral health messages and register a child with a dental practice. They felt they were sufficiently trained in brief intervention techniques to promote client empowerment. They also felt confident about being able to sign post clients if necessary. However, they felt underprepared for any more serious issues that they could inadvertently uncover while speaking to parents, and in particular when using CHATTERBOX. The following comments from three DHSWs are illustrative:

> *We did go on training courses…not for the kind of situations that we could walk into. (DHSW 53)*

> *I always feel that no matter how many training courses you go on I don't think anything would ever prepare you for the first time somebody confides in you…that does concern me. Just to react in the correct manner... (DHSW 30)*

> *That was something that concerned me, because I thought 'oh gosh, I don't know, am I trained to deal with that', especially if they were giving us information in confidence. I know you have to pass that on but if they were to tell me something, sort of like 'I'll tell you but don't tell anybody this', I have this fear, what do you do with that information, obviously you have to pass it on. (DHSW 13)*

Decision making process

The DHSWs' capability, which was affected by their anxieties, was reflected in their decision making process. DHSWs had to decide between delivering their oral health education (OHE) messages, and investing time in facilitating long term dental attendance. Often the benefits of registering children at a Childsmile Practice, where families would receive OHE messages long term, were overlooked in favour of providing a quick OHE message over the phone.

> *When you phone them, especially if they are fail to attend, they just make up any excuse, they just don't want you to go anywhere near them. (DHSW 6)*

This decision with regard to the time to invest in families was affected by the families' previous behaviours. Some families registered with a dentist but then failed to attend past the first visit. DHSWs stated that they preferred to deliver their OHE message when they got a chance to interact with the family, rather than use CHATTERBOX in an effort to facilitate regular dental attendance, especially with families they had decided would not attend in the short or long term.

> *I think if I do have extra time in a house, well it's probably better spent actually delivering some oral health education or doing something like that, as those are the messages that we are really needing to get across… we also need to get across the other messages and we only have a couple of minutes and have to make that decision, do I do CHATTERBOX … or do I give this Mum some information on what she should be feeding the child … what's more important. (DHSW 27)*

However, once more a conflict existed. Some DHSWs stated they would be willing to spend more time with a family when they felt the family would benefit from a more in-depth interaction.

> *I really feel that if a family you were dealing with was failing regularly and they were re-referred to you, you could go back with the box, with the timeline and the cards and say 'right let's have a look at this, let's work out when is really good for you because obviously there is something going on here'. Yes, it is something I would be happy to keep in my Childsmile Practice kit that if I felt that I was re-referred a family I would use it again. (DHSW 30)*

It seemed therefore that DHSWs who considered the families' circumstances and did not feel overly anxious, reflected and appeared to make positive decisions with regard to assisting vulnerable families.

Access to families

DHSWs' opportunity to use CHATTERBOX was influenced by access to families. The DHSWs found it "*very challenging*" to establish contact with many of the families referred to them. Often these families were not at home, even after having made an appointment with the DHSW. The DHSWs spoke of having to return on many occasions before they chanced to meet the family in their home.

> *The ones I have, who haven't attended, are the ones who have been on-going for more than a year. (DHSW 20)*

Lack of clear referral protocols to complete the care loop, in some areas, compounded this issue of access.

> *I think when we've got that* [clear protocols] *it will be much easier to have a really clear process for exactly what we do with these referrals and who's responsibility it is to do things and where we send different people and what we do with different kinds of people (DHSW 43)*

> *We check for the initial appointment, we don't keep track six months later to see if they've ever gone back for another one. But we check that first one. (DHSW 11).*

> *There is the option for the dentist to refer them back if they don't attend twice. If they miss two appointments, they can refer them back to us. (DHSW 11)*

The DHSWs stated that families found it easier to ignore them as the Childsmile programme was voluntary, whereas families were afraid to ignore communication from the HVs as this could have more serious consequences for them.

> *I had two in the last month who wouldn't let me in the door; I had to speak to them on the doorstep. (DHSW 27)*

DHSWs stated that when they spoke with families over the telephone to arrange a home visit and tell them about the DAPER III study, parents were more likely to refuse the invitation to participate. The DHSWs reported that if they were already on a home visit and told parents about CHATTERBOX and invited them to participate, parents were most willing and enjoyed using CHATTERBOX to identify their dental-related concerns.

> *I don't think I would tell them* [about CHATTERBOX] *in advance, I think I would just take it and show it to them and explain to them the benefits of it and give them the choice. I think once they saw it and they realise, I think most parents would be quite keen to do that on that basis. (DHSW 13)*

Communication with colleagues

DHSWs' opportunity to implement the CHATTERBOX intervention was influenced by level of communication with the HVs. The relationship that the DHSWs had with the HVs provided either an opportunity for support and communication or acted to increase barriers to the implementation of Childsmile Practice, and CHATTERBOX nested within it. Less anxiety was experienced by DHSWs when their relationships with the HVs were good.

> *I know the health visitors here, they wouldn't put me anywhere where they feel I was in any risk or that would be of any concern as such. (DHSW 10)*

However, increased anxiety was experienced when communications with the HV was poor.

> *I had one that I'd phoned the HV because they hadn't written anything and they said oh, 'we should have told you on the form that there is domestic violence and you shouldn't be going into the house'. Luckily the family had moved out, I could have turned up unprepared. (DHSW 35)*

The DHSWs' relationship with the dental practices and information gleaned impacted on their motivation to liaise between the families and dental practices.

> *…the dental practices just aren't responsive here. (DHSW 20)*

… we all have our own practices that we deal with. Mostly, I've got quite a good relationship, we call in to see them every now and again just to keep up our relationship with them. I think it's important to try and keep the rapport going… They are usually quite obliging, if they can help you, they will help you. (DHSW 90)

Professional role and identity

DHSWs' motivation to implement the CHATTERBOX intervention was influenced by how they perceived their professional role and identity. Some DHSWs stated that their professional role was to offer on-going support to families who were vulnerable and with whom the DHSWs felt they could establish ties; families who would become aware of the help provided, who would trust the DHSWs to avail of their assistance and adhere to the oral health advice given.

..even the failed to attends, once they get to know you and you've been in their home to see them they tend not to want to let you down .For example, the family that we used CHATTERBOX with, she had failed so many times and when we got involved she sort of built up a trust and it's like she didn't want to let you down. She has made all her appointments so far. …they are more likely to attend [long term*] if they trust you. (DHSW 13)*

Once you've established contact with them and a relationship with them you can get them signed up with these things [School Fluoride varnish sessions], *whereas necessarily they maybe wouldn't, you know. (DHSW 60)*

However, other DHSWs perceived their role as solely delivering oral health education. These DHSWs spoke of their relationship with the families as temporary and felt that building health-related relationships was not *"their kind of job"*. As they spoke it became apparent that their provision of dental education was located in the medical model of health promotion and not a client centred approach, as illustrated in their discussion of about teeth in isolation from the individual. These DHSWs felt that CHATTERBOX was more useful to

HVs or social workers who needed to build long term relationships with the family. The applicability of CHATTERBOX as a tool more useful to "*others*" was a repeatedly voiced opinion.

> *We are really here to deliver an intervention, rather than on-going support. We are just kind of brief intervention, giving them information and we don't usually see them again. (DHSW 15)*

> *It's not building relationships, because our main aim is to get them registered with the dentist and get them attending. (DHSW 67)*

> *..maybe a Health Visitor would be better suited to use CHATTERBOX. (DHSW 15)*

It may be suggested that the DHSWs were conflicted about just how involved they wanted to be with the referred families. While they felt unhappy to just "*signpost*" families with problems, they also felt they should not *"delve too deeply",* being fearful of the consequences.

> *…because you don't want to open up these things and just go 'ok well I'll make you an appointment for Tuesday, see you later, because that's almost what it is you're doing. (DHSW 11)*

Feeding their conflict was the feeling that they were ill equipped to give appropriate advice, together with a feeling of helplessness and guilt because on occasion they could do no more than give out a phone number or refer the family on to someone else.

> *I think there's maybe just that hesitancy in that if you get too involved with some of these families you very much get latched onto and you become a bit of a crutch.…that's why I was saying that it would be better suited to somebody else. Not that we are not interested in their real issues, we are, but I think that role and that responsibility may be better placed with somebody else rather than a Band two support worker, who is supposed to be specifically trained in oral health. (DHSW 43)*

DHSWs found balancing their various roles with Childsmile challenging. Commitments such as the Childsmile Nursery and School Fluoride Varnish Programme, with the need to achieve the HEAT target (Scottish Government, 2013), were prioritised over Childsmile Practice house visits.

> *I think it's* [home visit] *a job in itself. It's a full time job if you could do it full time on its own. But, we all have other roles to play within our jobs and we dip in and out of these things, and it's hard to keep your mind set on one thing when you know you've got other parts of your job to do. If you were only doing this all the time you would probably do a better role with the paperwork and things. But you don't, because you only get the chance to do it one day a week. (DHSW15)*

In NHS Boards with greater experience of Childsmile Practice and home visits, the DHSWs had found a way of balancing the various elements of the Childsmile programme within their professional role.

> *I enjoy the variety of the job, you know, I enjoy both the school and the house visits. (DHSW 90)*

> *…actually we think the Schools and Nurseries is the easy bit whereas they see it the other way round because that was what they were geared up to do. (DHSW 11)*

Environmental context

Environmental context included characteristics of the client base such as [i] potential for violence, [ii] parental engagement, and [iii] parents' attitudes also influenced how motivated the DHSWs were about delivering the CHATTERBOX intervention.

[i] *Potential for violence:*

The potential for violence was a source of great anxiety. Both NHS Boards had protocols in place for safety during house visits, which the DHSWs adhered to. In addition, they had

attended courses in handling violence and aggression. Some DHSWs were more comfortable than others with house visits.

> *I think it's down to personal feeling as well, I mean what one person might find intimidating another person might think it's quite normal and vice versa so I think you just have to go in there with an open mind and just deal with every situation as it were the same, non-judgemental and non-committal and just follow your policies. (DHSW 30)*

Despite these safeguards, some DHSWs feared getting into a situation that tested their training.

> *It's just that it's their home. You are kind of going in, and a lot of them will maybe have like child protection forms…and you are kind of going in and you don't know how they are going to react to you saying 'you've not taken them to the dentist' or 'you've missed an appointment'. (DHSW35)*

> *Sometimes, if you are going to a certain area* [you get anxious], *but usually they are unfounded. I think there's only been two* [incidents which caused concern]. *(DHSW 13)*

[ii] Parental engagement:

Engagement by parents with CHATTERBOX influenced DHSWs' motivation to use CHATTERBOX in subsequent visits. When DHSWs felt that CHATTERBOX was well received by parents who opened up to them and spoke more than they usually did, they were keen to keep CHATTERBOX as part of their normal resources to use during house visits, even after the project had ended.

> *I did have* [concerns] *before we did it, because I wondered how it would be received by the parents, but after today I feel a lot more confident. I think the only part now is the frustration of asking and getting refusals. You know, once you've done it, I think you know, certainly today, I think she benefitted from it definitely. To do it now, no concerns, I felt quite comfortable…I would take it* [CHATTERBOX] *out on my visits.(DHSW 10)*

> *They were fine with it, the ones who have done it were absolutely fine with it. (DHSW 60)*

Many DHSWs however spoke of feeling frustrated by their inability to use CHATTERBOX with families they believed would benefit. This was due to not being able to contact the families or because the atmosphere in the house was not conducive to engaging with the parent.

> *I have to say I did struggle to get anyone else to sign up… the ones I have for failed to attend haven't been answering their phones full stop. (DHSW 60)*

> *It's difficult because each case that we deal with is different…you go into one* [house] *the family's okay but there are lots of people around, you can go into others and daren't get the box out because it's that dirty and you know they wouldn't be interested. (DHSW 13)*

[iii] *Parents' attitudes:*

Parental attitudes influenced the DHSWs' motivation to deliver the CHATTERBOX intervention. Some DHSWs stated that that the only reason families did not take their children to the dentist was because it was not important enough to them to do so. They stated that such families did not view oral health as a priority and this was the prevailing mind-set of the families they visited. Furthermore, their view was that the lack of attendance was not an indication of any underlying anxiety. The opinions of the DHSWs of the parents they visited suggested an element of 'victim blaming' (Watt, 2007). It was therefore not surprising that the DHSWs repeatedly told and reminded the families about their dental appointment in the belief that the families would eventually attend. The DHSWs were willing to repeat this cycle of reminders in order to get their clients to change rather than use the CHATTERBOX intervention and adopt a more holistic view of family needs.

> *….it's not that they don't plan their day and they want us to help them set up a dentist appointment, they don't want to go to the dentist …it's not an issue for them, it's not a priority….they will eventually go. (DHSW15)*

> *…people don't want our help in the first place…then saying can you get this box out… when they are not obviously expecting you to be there long. (DHSW 20)*

Beliefs about consequences

Motivation to use CHATTERBOX increased once initial fears were overcome and CHATTERBOX was used at least once. The DHSWs were then favourably inclined towards using it again.

> *I actual do like it, it is a good idea … it's not for everyone, just for some people and you will only know that when you get to the house. It's only when you meet them that you find out if you could use this or not. I think it's a good idea. I like it, just if it was smaller and not so many cards. (DHSW 53)*

> *Beforehand I was quite anxious about it and I was quite nervous. I was nervous yesterday but once we did it I felt fine and I definitely feel more confident and I wouldn't think twice of trying it out on a family. (DHSW 30)*

Incentives

Important elements of motivation are financial incentives and emotional barriers. Many DHSWs were unhappy that they were being asked to take on the added role of "*social worker*". They stated that as support workers on a low pay it was unfair to ask them to take on additional responsibilities without remunerating them for it. Complaints were voiced that it was common knowledge that some DHSWs were on higher payment bands than others but all were expected to carry the same work load.

> *Some folk like it. Yeah maybe if you were into it and this was what you were doing all the time. You got a role to do and you find you have the role of say a social worker job, but this is a grade 2 job so we would probably be expecting to be paid a bit more to be doing a job like that.(DHSW 17)*

Chasing up families that did not attend for their dental appointment and visiting vulnerable families was "very draining" and decreased motivation.

[2] Organisational factors

Organisational factors at NHS Board and within NHS Board services were identified as having an impact upon DHSWs' work with Childsmile practice and implementation of the CHATTERBOX intervention. Communication as an organisational factor emerged as the overarching theme and as a primary influence in this regard.

Organisational communication emerged at four different levels:

[i] Organisational communication at NHS Board level

[ii] Organisational communication within NHS services with Dental Practices

[iii] Organisational communication within NHS services with Health Visitors

[iv] Organisational communication with communities

[i] Organisational communication at NHS Board level

In October 2012 all referrals to the DHSWs in one participating NHS Board were collated. There were only three referrals for children under six years of age, with no protocols in place to follow-up the older children who failed to attend for dental care. In addition, there were no NHS Board protocols in place to close the referral loop. This resulted in many families being lost to follow-up after an initial appointment had been made with a dental clinic. The following comment from a DHSW is illustrative:

> *..we didn't exactly have a particularly clear protocol of how we were going to handle the referral after we receive them, which is something that we are kind of in the middle of developing at the moment. (DHSW B113)*

[ii] Organisational communication within NHS services with Dental Practices

Members of the Public Dental Service reported that that low referral numbers of children and families who failed to attend was due to general dental practices, in some areas, failing

to report these families to the DHSWs. The comments suggested that general dental practices were not "*very keen*" to encourage patients who frequently fail appointments to re-attend. Therefore, parents and children who fail to attend for dental care were not reported to the DHSWs for follow-up appointments to enable access to dental care.

One-to-one discussions with the members of the Public Dental Service revealed that referral to the DHSWs using the Childsmile system was new. Dental Practitioners were following NHS Board protocols which while effective in some instances resulted in children and families becoming lost in the system. Therefore, practitioners reported that *"it could take up to six weeks from the date of failure to attend before the DHSWs received a referral"* from a referring dentist, within the NHS Board.

[iii] Organisational communication within NHS services with Health Visitors

There were few, if any, organisational protocols in place to facilitate effective communication between HVs and DHSWs. The lack of organisational communication between the HVs and DHSWs resulted in DHSWs finding it difficult to follow up HV referrals causing a *"backlog and wasted time"*.

> *…we struggle to get in touch with the HVs* [within our NHS Board] *as well, that's another barrier. (DHSW B115)*

> *The communication with the Health Visitor varies, I have a very good relationship with my Health Visitors down there, I have to say very good. But elsewhere sometimes the HVs are brilliant at getting back to you if you need some more information, sometimes they can be, you know, not the best at keeping up communication, which is really frustrating for me…(DHSW A118)*

Therefore it may be suggested that the lack of NHS Board communication protocols acted to reduce opportunity and motivation for DHSWs to engage with vulnerable and hard to reach families.

[iv] Organisational communication with communities

Communication pathways with the communities impacted on the implementation of Childsmile Practice and the CHATTERBOX intervention by the DHSWs. The two participating NHS Boards differed in the organisational communication links that they had with their local communities. In one NHS Board the DHSWs seemed to have *"personal ties with the families"* living in the area. These communication links resulted in families being more willing to accept oral health messages from the DHSWs.

> *It is quite a small town in the sense of you tend to know a lot of folk , so they maybe know you or know of you. Well, I think It does make a difference because it's not a stranger as such that they are seeing…(DHSW A111)*

> *Once you've established contact with them and a relationship with them you can get them signed up with these things* [School Fluoride varnish programme], *whereas necessarily they maybe wouldn't…(DHSW A119)*

In NHS Boards with good community communication, DHSWs wanted to and had built good relationships with families and had provided much needed support. This was reflected in DHSWs following-up their referrals lost to the system using their own initiative long after the first visit. Moreover these DHSWs felt comfortable doing house visits on their own.

> *….we used to do two or three visits, but time doesn't allow us anymore, so we do our initial visit and what we do maybe four or six months down the line is we give them a courtesy telephone call, just to see… whether they have received their dental appointment, are they happy with how things are going. We also say to them, you know, that if they have problems with getting their children to toothbrush or whatever, we can come out, you know, with some tools, be it toothbrushing charts or whatever..(DHSW A114).*

> *I do tend to phone them up now and again very sporadically just to see how things are going, if they need anything else, if they need any more toothbrush packs or do they need any more support, you know, just to see how things are going. (DHSW A118)*

However, in NHS Boards where communication with the local community was piecemeal, the DHSWs stated that their work was confined to deliver dental health information.

> *We probably feel that is out with our remit. That's for somebody else to deal with. (DHSW B111)*

> *But that's a bigger commitment than obviously our role. Because the first time we meet a lot of them is when we turn up at their door,… then it's hard to build a relationship instantly like that. (DHSW B114)*

In summary

Individual and organisational factors impacted on the execution of DAPER III. Findings from this study suggest that the behaviours of DHSWs which influenced their implementation of the CHATTERBOX intervention resulted from a combination of how capable they felt, the opportunities that arose for using CHATTERBOX and how motivated they felt.

DHSWs' knowledge about the task given to them as well as their competence and skills influenced how capable they felt about visiting families in their homes and using CHATTERBOX to explore parents' reasons for not taking their children to the dentist. Their capability was also reflected in the decision they made about introducing CHATTERBOX to a family when they were in a home.

DHSWs' opportunity to use CHATTERBOX was influenced by access to families, communication with colleagues and the culture of their NHS Board. Gaining access to the families was very difficult because of increased mobility, changing telephone numbers and difficulties communicating with colleagues. The lack of clear protocols, in some NHS Boards, to complete the referral loop when a referred family had failed to attend was an additional barrier to delivery of the intervention.

Professional role and identity, environmental context, and incentives emerged as facilitators and barriers to motivation in using CHATTERBOX and visiting parents in their homes. Once initial fears had been overcome and CHATTERBOX had been used, at least once, confidence was increased. Therefore usage increased facilitation and motivation. Motivation also emerged as a dimension of Childsmile implementation. In the NHS Board where Childsmile Nursery and School had been implemented first, it was harder to balance the dual roles of community health worker and service provider.

Communication at the organisational level emerged as a major influence on implementation of Childsmile practice and the CHATTERBOX intervention. Poor communication within NHS Boards, with Dental Practices and with HVs was reflected in the low referral rates and lack of clear protocols to follow up families who fail to attend for dental care. The 2011/2012 Childsmile National Headline Data reported a decline of 30% (compared to the previous year) in referrals to DHSWs and a 21% decline in the number of children who were successfully contacted by DHSWs. Findings from this study reflect national findings.

Organisational communication with communities influenced DHSWs' capability, opportunity and motivation to implement the CHATTERBOX intervention. This highlights the importance of community relations in a programme such as Childsmile, which is based on health promotion principles of the Ottawa Charter (Macpherson et. al., 2010; WHO, 1986)

5. CHATTERBOX Case Histories

Case studies of a sample of CHATTERBOX visits in NHS Tayside and NHS Highland

These case studies illustrate the use of CHATTERBOX . They also provide an insight into the lives of families with young children, and how CHATTERBOX was used to help parents identify the best time during their day to take their young children to the dentist.

CASE STUDY ONE

BACKGROUND

Jane[2] is a mother with four children aged three, six, eight and nine. She is a full time parent, in a relationship, living in council housing. Jane suffers from depression.

CHATTERBOX INTERVENTION

Jane had missed the children's last dental appointment because she could not get a lift to the dentist that day. When told about the study Jane was happy to participate. She completed the questionnaire and used CHATTERBOX to describe her typical school day, which was when she usually scheduled the children's dental appointments. Jane spoke of how she found it very stressful to manage all four children in the waiting room of the dental practice. Jane spoke of her depression and how she feels anxious using public transport. Using CHATTERBOX (Figure 19) Jane was able to identity that the best time for her to take her older children was between 9 a.m. and 10:45 a.m., which was the time that her youngest child was in nursery; although she said ideally she would prefer to take all four together. The DHSW negotiated that she would accompany Jane and all four children to the dentist. She (the DHSW) would look after the children in the waiting room while Jane was in the

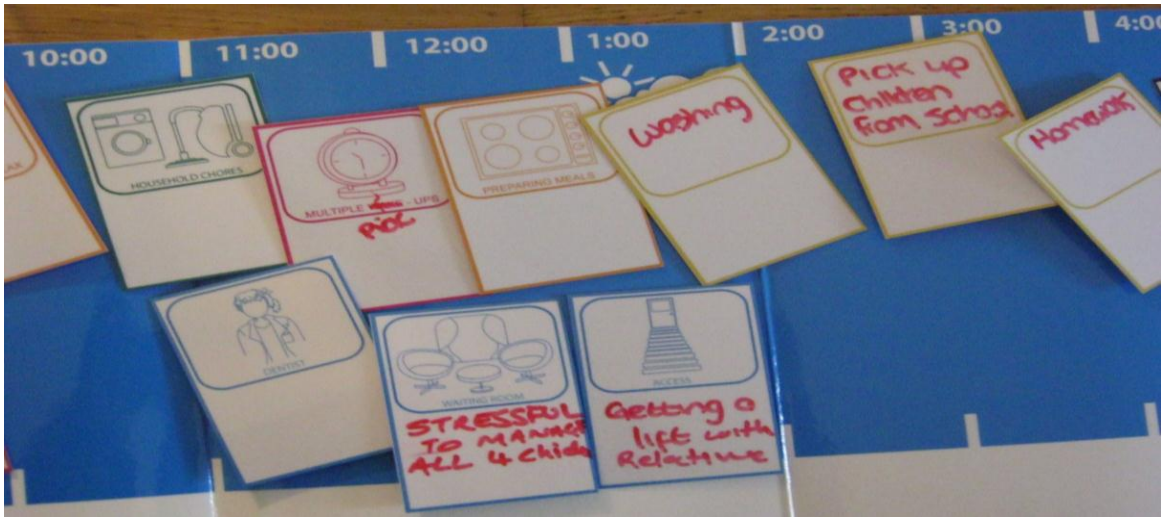
[2] All names are fictitious

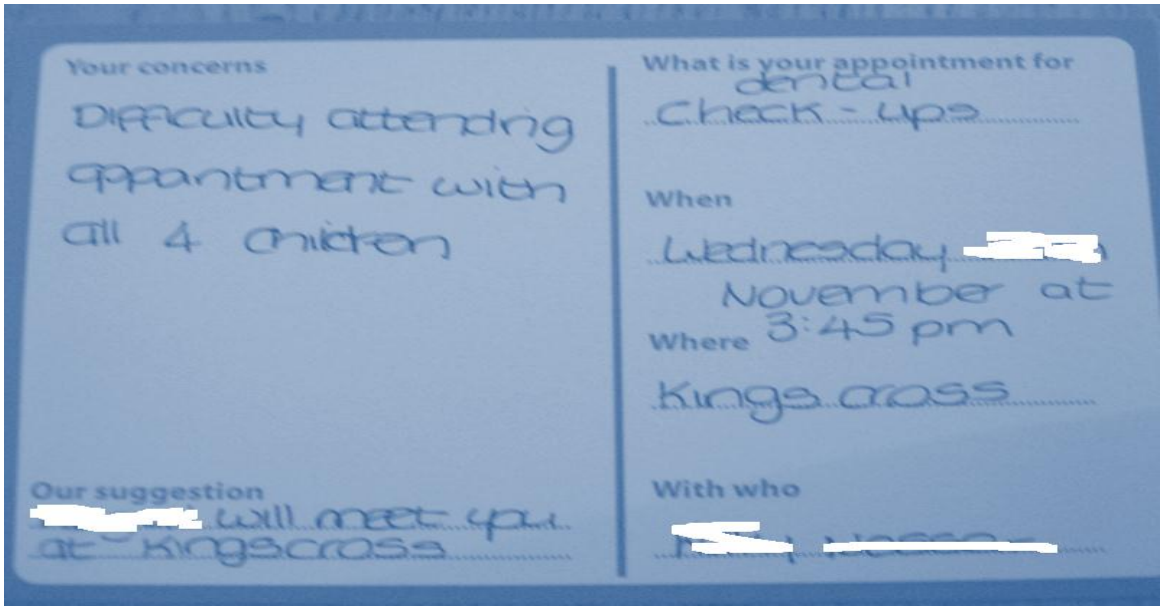
surgery with one of the children. Jane agreed with this solution.

OUTCOME

Jane took her children for the dental appointment that was made for them by the DHSW. Jane was accompanied by the DHSW who remained with the family until all children were examined. A second home visit was arranged by the DHSW for completion of the follow-up questionnaire which was completed by Jane.

Figure 19 Dental-related concerns identified by Jane and support tailored to the concerns identified





CASE STUDY TWO

BACKGROUND

Norah is a 38 year old single mother with four children, three under the age of ten and one fourteen year old son with learning difficulties. She is a full time parent living in council housing.

CHATTERBOX INTERVENTION

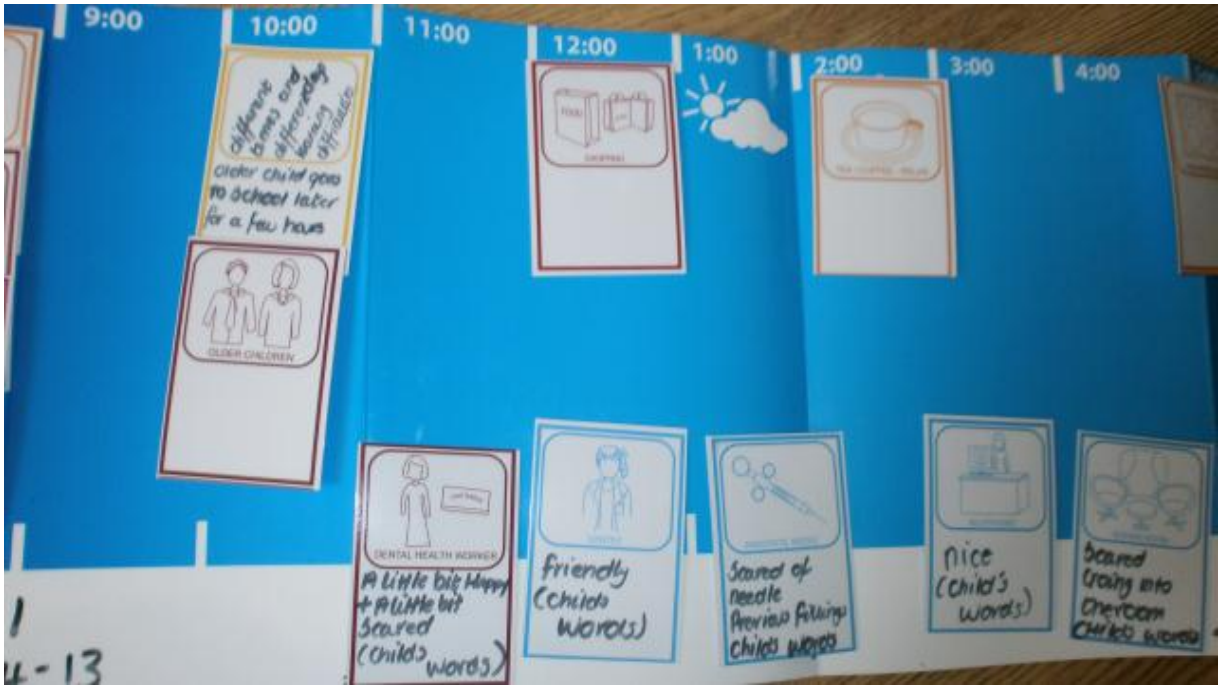
Norah was happy to participate in the study when approached by the DHSW. Norah spoke repeatedly that the "only reason" her nine year old daughter Zoe failed to attend the dentist was because Norah forgot her own appointments. Norah recognised her forgetfulness to such a degree that she stuck reminders on her refrigerator. She spoke of her dental-related concerns such as getting Zoe to brush her teeth at night. Zoe stated that she did not need to brush at night because she was due to get fillings at the dentist anyway. The DHSW told Zoe the benefits of regular toothbrushing with fluoride toothpaste and that if Zoe brushed regularly it would stop her needing fillings.

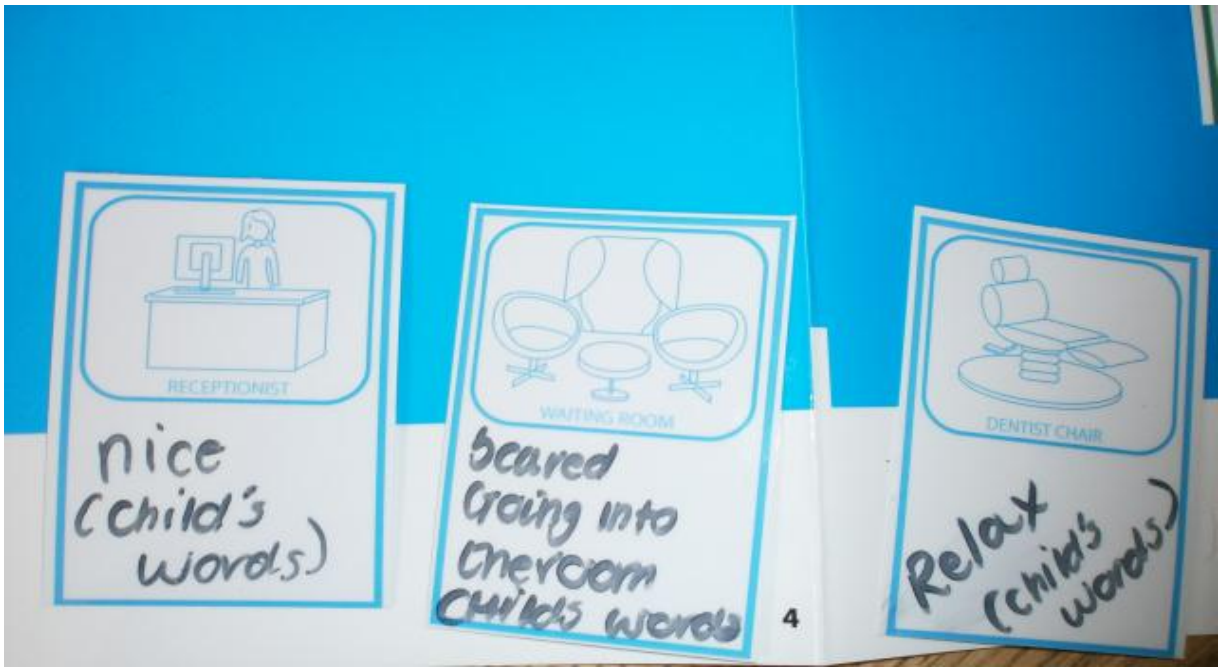
CHATTERBOX (Figure 20) enabled Norah to speak about being unable to find full time employment because of the demands of her son Tim who had learning difficulties. Norah mentioned that she was registered at a different dental practice from her children and requested that she be transferred to the same practice as her children. The DHSW stated that she would do this for Norah. Zoe picked up the activity cards relating to dental visits and spoke about her previous experiences at the dentist. Zoe selected a picture with dental instruments on it and spoke about her fear of needles. Zoe said that she liked the dentist but "got scared" when she went into the surgery. She also mentioned that although she thought the DHSW was nice she was quite scared of the varnishing procedure in School.

OUTCOME

Following the CHATTERBOX intervention with the DHSW Norah and Zoe kept their next dental appointments.

Figure 20 Norah and Zoe's dental related concerns





CASE STUDY THREE

BACKGROUND

Sally is a 29 year old single mother with four children, two boys and two girls, three under the age of seven. She is a full time parent living in council housing. Sally's former partner was physically abusive and now in prison.

CHATTERBOX INTERVENTION

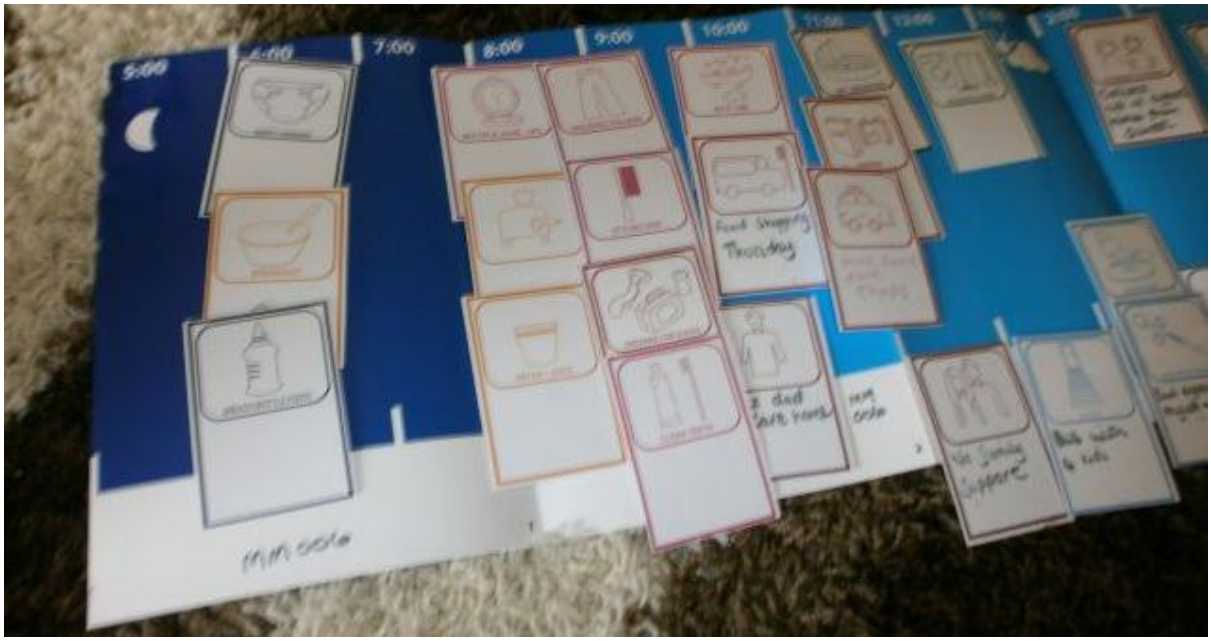
Sally spoke about her dental fears ever since she had severe pain during a treatment visit. Sally had not visited the dentist in years and as a result felt she had "bad teeth". Sally had been very careful not to "pass the fear" onto her children. Sally had failed numerous dental appointments for her children in the past because of her own dental anxiety.

Sally was happy to have a chance to think about this using CHATTERBOX (Figure 21). She was able to identify that a 10 a.m. appointment would suit her best as the children were ready by 9 a.m. for school and there was a 9:30 a.m. bus they could catch. In addition, Sally felt it was easier to take them before school rather that in and out of school or in the evenings, which was her busiest time of the day as she prepared three to four different types of meals. Sally also mentioned that Thursdays were not convenient for her as she usually did her food shopping on Thursdays. Sally's youngest daughter Jenny had nursing caries. Sally had stopped giving Jenny juice in a feeding bottle as advised by the DHSW.

OUTCOME

Following the CHATTERBOX intervention with the DHSW Sally kept her children's next and subsequent dental appointments.

Figure 21 Sally's timeline with dental-related concerns



CASE STUDY FOUR

BACKGROUND

Mary is a single mother with one child aged two years. Mary does not work outside the home and lives in council housing.

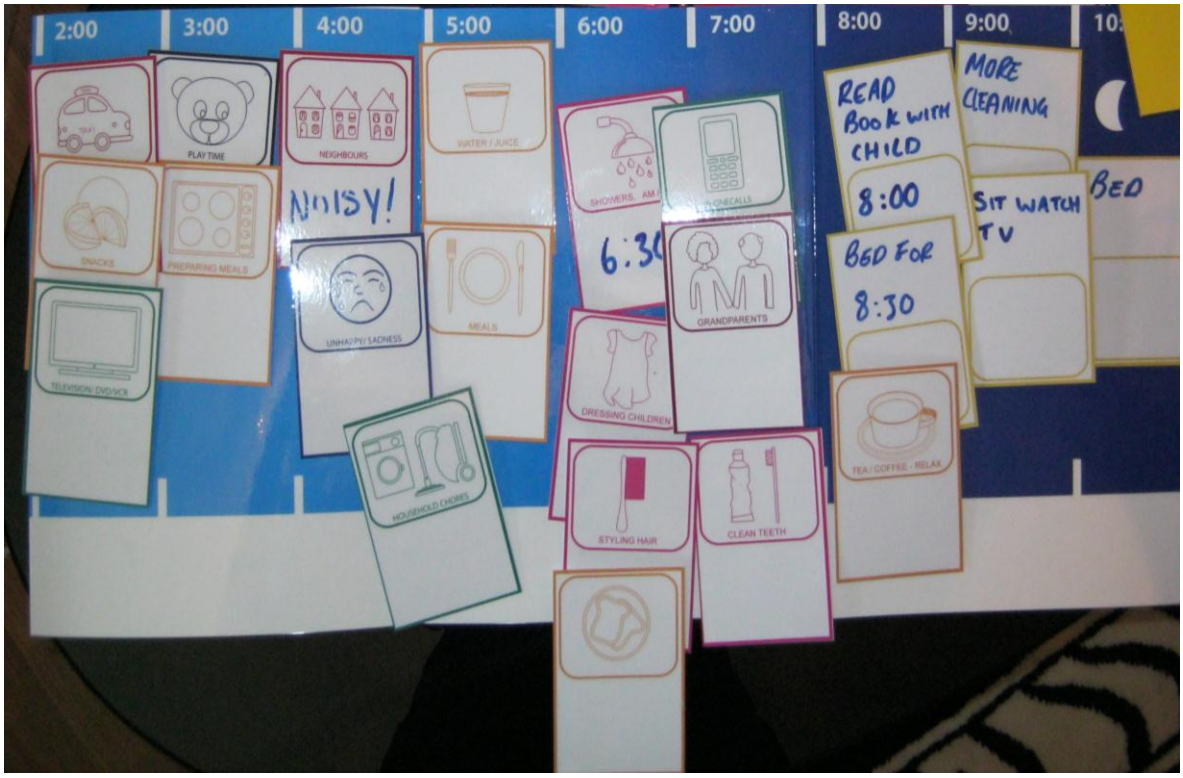
CHATTERBOX INTERVENTION

Mary was getting dressed as the DHSW arrived for a scheduled 11 a.m. appointment. Mary was very pleasant and friendly and invited the DHSW to sit in the lounge while she put away the dishes in her kitchen. Mary was keen to report how hectic her life was and was very happy to talk about her previous day using CHATTERBOX (Figure 22). She used many cards to show how busy she was. Mary's two year old daughter May wanted constant attention in addition to the chaos of two six month old kittens running around the flat. Initially May was content to use the crayons and colouring sheets included in CHATTERBOX but soon grew tired and wanted to play with the activity cards. When Mary scolded May the little girl started crying and was sent to her room, but soon returned. Mary seemed to have a hectic schedule; however a closer look at the timeline allowed Mary to comment that her time could be better managed. Mary suggested that she use a 24 hour time line as she was up all night because of noisy neighbours and wanted to show that on the timeline. Mary also suggested that cards such as ironing, disciplining children, unexpected phone calls/ visitors, tidying the house and looking after pets were written on the blank cards. When the DHSW asked Mary if she preferred to make an appointment with a dental practice close to where she lived, Mary said she had a bad experience with one of the local dentists and didn't want to return there. When asked if she wanted to visit a different practice in the same area, Mary replied that she had heard that the dentist that the DHSW was talking about did lots of un-necessary treatment. Mary then mentioned wanting to be seen at the dental school, as she was sure they would never do any un-necessary treatment there. Mary then got up to get her child ready to go to the park, as the weather was good at the time. Mary was happy for the DHSW to visit her for a follow up appointment.

OUTCOME

Mary moved out of the area with her daughter. They could not be contacted as no forwarding address had been provided to NHS staff.

Figure 22 Mary's timeline showing a typical day for Mary



CASE STUDY FIVE

BACKGROUND

Meg is a 26 year old mother with a two year old son. She works part time and lives with her partner (child's father) in a privately rented property.

CHATTERBOX INTERVENTION

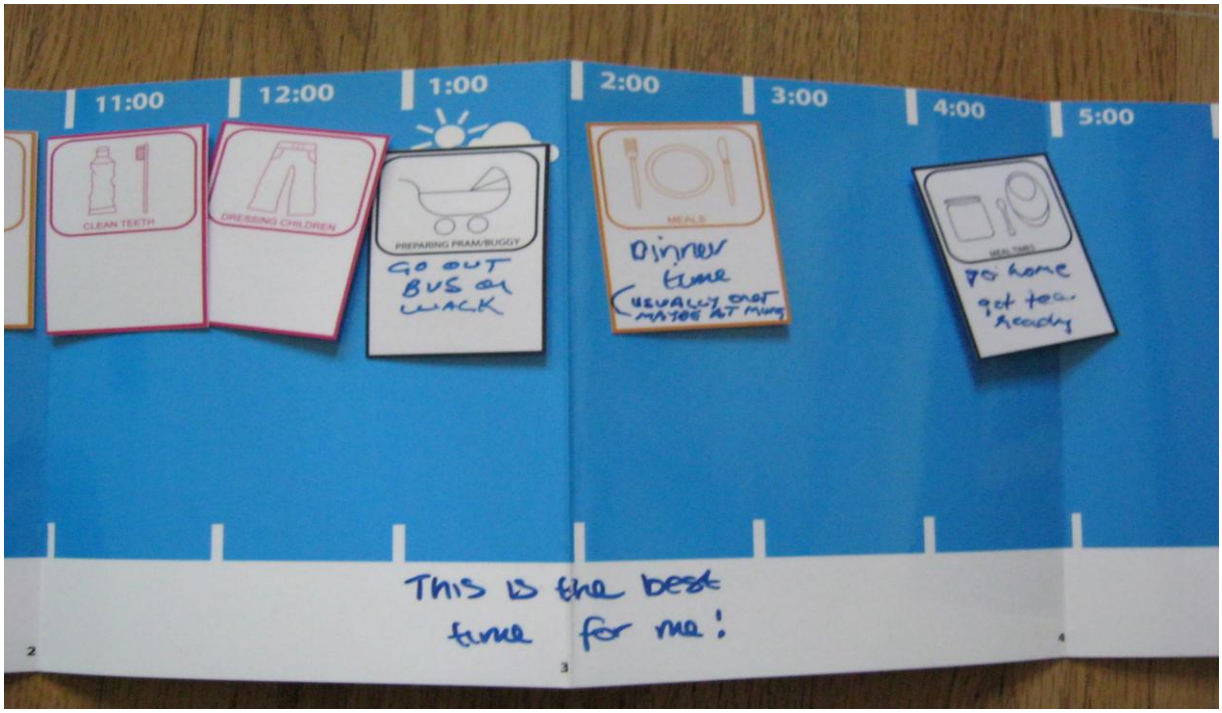
Meg had previously been visited by the DHSW who said that Meg was very accommodating and readily agreed to having an appointment made for her at the local dentist, whose practice was only a few minutes' walk from her house. The DHSW called the practice from Meg's house and made an appointment at a time suitable for Meg. Meg failed to take her son Tom for his dental appointment. The DHSW was informed by the practice that the family had missed their appointment. The DHSW made a second appointment and notified Meg by letter and text. Meg failed to take Tom along for this appointment. The DHSW was then told by the practice that they were not happy to register the family if they failed to attend again. The DHSW decided to visit the family before making another appointment on their behalf.

When the DHSW visited the house with CHATTERBOX Meg was very welcoming and immediately apologised for failing Tom's appointments. She said she had to get her boiler fixed so missed the appointment time, but did go to the practice in the afternoon and found that it was closed. Meg also said she did not receive the letter or text informing her of Tom's second appointment. Meg mentioned, many times, that she felt bad that she hadn't taken Tom to the dentist as yet. When the DHSW introduced her to CHATTERBOX Meg readily agreed as was very happy to participate. With the DHSW Meg quickly mapped out her day on the CHATTERBOX timeline (Figure 23). Meg identified a time in the afternoon when she was usually out with Tom visiting her mother, as appropriate for a dental appointment. She then said she would call the practice herself and make an appointment for the next day. Meg agreed to a follow up visit by the DHSW and asked the DHSW to call and arrange a time for it.

OUTCOME

Meg did not respond to appointments with the DHSW or HV and missed Tom's dental appointment three times.

Figure 23 Meg's timeline showing the best time for Meg to visit the dentist with Tom



Overall Discussion

The purpose of the DAPER programme of research was to elicit and address parental concerns associated with dental non-attendance, so that families could be offered tailored support, which would ensure that they would attend the dentist for continuing care. The DHSWs spoke about already providing tailored support to the families that asked for it. The DAPER research programme aims to include families that find it difficult to ask for help or those whose problems are not obvious at first. It is about opening up communication with all vulnerable families and helping them identify their problems and their own solutions so that any behaviour change is sustained (regular dental attendance).

For families to make sustained behavioural changes, a positive long-term relationship with their DHSWs is important. For vulnerable families, a one off visit by the DHSW is not sufficient; the DHSW needs to build a connection with these families to facilitate regular child dental attendance. The findings from this study highlight how individual and organisational factors facilitate or inhibit building of relationships between DHSWs and families.

The sense of vulnerability that DHSWs feel at the prospect of lone working, especially with vulnerable families who are socio-economically deprived and historically have higher incidences of drug, alcohol or violence related issues was very apparent in all the interviews. The question of Band two support workers being the right people for house visits was raised. The appropriateness of their skills, training, support and remuneration was questioned. As long as staff feel anxious and dissatisfied, vulnerable families will not receive the kind of support they need to make long-term behaviour changes.

Some DHSWs are inherently more capable or have built on previous experience to help them interact more successfully with vulnerable families. Therefore, coordinators should identify such members in their teams and allocate all house visits to them. Dedicated home visit DHSWs could prove economically advantageous as they would be trained to do lone visits, freeing up the regular DHSWs who would otherwise do home visits in pairs. Following the example of NHS Fife, NHS Boards could select DHSWs with an aptitude for this type of work to take on sole responsibility for Childsmile Practice. The number of DHSWs in each NHS Board could be tailored to suit local need. Having DHSWs dedicated to this role would also allow them to focus on improving relationships with HVs and dental

practices. It would also make it easier for the practices and HVs to have one or two people within the Childsmile oral health team, that they can deal with regularly.

Difficulty with transport was highlighted as a barrier, by DHSWs, to parents accessing dental care for their children in NHS Tayside and NHS Highland. Current protocol does not allow the DHSWs to drive families to the dentist themselves. While in most cases the DHSWs were in agreement with this protocol, sometimes they felt that some of the more vulnerable families needed extra support to travel to their appointments. In some areas of NHS Highland parents had to sometimes take their children to a different area for dental treatment under general anaesthesia (GA) and often had to stay there overnight because they were not allowed to take their child on public transport after a GA. Although expenses were reimbursed, the process sometimes overwhelmed some vulnerable parents. Transport was also identified as a barrier in DAPER I (Chambers and Freeman, 2010).

The study also revealed the importance of sharing Childsmile experience across NHS Boards, especially between the East and West, because of their different expertise with the different elements of Childsmile. The difference in child dental registration/attendance between the two NHS Boards following the CHATTERBOX intervention could be attributed to individual and organisational "*constraints*" (Pawson and Tilly, 1997). These constraints include what was expected from them by the different stakeholders (the local co-ordinators, programme directors, trainers), their official job description, what the DHSWs believed to be their job and their experience with the different elements of Childsmile. These constraints limit the DHSWs' capacity to make choices which are reflected in their behaviour (Pawson and Tilly, 1997). Introduction of CHATTERBOX altered the balance of these factors bringing out the differences between the NHS Boards and highlighting the importance of contextual factors when doing a process evaluation.

The realist review conducted in the initial part of this study provides additional and evidence based support. It revealed that the relationship between the client and health care provider is enhanced or diminished by the client's attachment style. Majority (5) of the mothers who participated in the study had dismissing attachment style. Dismissing attachment style is characterised by "*lower health care collaboration and a greater number of missed health visits*" (Bartholomew and Horowitz , 1991). Dismissing clients often have difficulty asking for help and receiving help when it is offered (Dozier, 1990). Therefore, they require a greater level

of engagement on the part of the DHSW to build a trusting relationship. Knowledge of client's attachment style empowers the DHSW to tailor their support, consequently increasing the likelihood of the client adhering to their health advice. Therefore, informed action taken by the DHSWS could make it possible for families who are otherwise resistant to register/ attend Childsmile Practice, attend.

The biggest limitation to DAPER III was accessing families living in areas of high deprivation. This was also noticed in phase 1 of the DAPER study when attempts were made to visit deprived families in their homes (Chambers and Freeman, 2010). This issue is also highlighted in the literature (Hallberg *et al.,* 2008). Therefore, while DAPER III was unable to meet the target for sample size, it highlighted individual and organisational factors that act as barriers or facilitators to the implementation of oral health interventions. Building better links with the Health Visitor seems to be a simple and sustainable way of improving access to vulnerable families. Other methods include using a snowball sampling technique to access hard to reach families. It would involve building relationships with families who attend local services such as baby clinics and through them contacting other parents who need help with dental care for their children, and so forth.

In addition, since CHATTERBOX was designed to encourage communication between DHSWs and families it could be made part of the Childsmile Practice armamentarium to facilitate DHSWs' interaction with vulnerable families. Some DHSWs felt CHATTERBOX would be useful for all house visits, while others felt it would be useful to use with families with children with special needs, parents/children with dental anxieties and fears, children with any medical condition or requiring GA, and disorganised families or those with a lot going on who need extra support. Most DHSWs felt they could only judge whether the family would engage with CHATTERBOX or not once they were in the house and not before. Therefore, CHATTERBOX can be made available to all the DHSWs to use at their discretion to improve communication and build relationships with families.

These findings support Deas et al.'s (2013) observations on the disparity between the vision, behind the creation of the role of DHSW, and its translation. These findings supplement findings from the Scotland wide survey of DHSWs experiences of visiting vulnerable families in their homes (http://www.child-smile.org.uk/uploads/documents/21669-DHSWHomeVisitingConcerns.pdf). It highlights the importance of clarifying the role of the

DHSW; providing additional training to support the DHSWs fulfil their roles; improving communication between DHSWs, HVs and dental practices; having protocols for closing the referral loop and following up families who fail to attend for dental care; and sharing information and experiences across NHS Boards. It also highlights the need for discussions around issues of transport for vulnerable families and incentives for DHSWs.

6. Next Steps for CHATTERBOX

Introduction

Barriers to accessing dental treatment for children were highlighted in the first qualitative part of the **D**eveloping an inventory to **A**ssess **P**arental concerns and **E**nable child dental **R**egistration (DAPER) research programme. The second part of the DAPER programme demonstrated that the Parental Dental Concerns Scale (PDCS) was able to identify parents with high levels of dental concerns, and that these parents were less likely to engage in preventive dental visits for their children. The third part of DAPER was a field trial to investigate whether parents identified with dental concerns, using the PDCS, would benefit from additional Dental Health Support Worker (DHSW) assistance to register and access dental care for their child. A communication tool (CHATTERBOX) was developed and used to improve the client-DHSW interaction, so that DHSWs could tailor support to the needs of the family. Preliminary work in two NHS Boards suggested that CHATTERBOX was well received by families but difficulties were encountered with regard to the role of the DHSWs. Therefore, a detailed feasibility study is required of this communication intervention in preparation for a definitive RCT, to test the effectiveness of the CHATTERBOX intervention in a NHS Board with extensive experience of home visits.

Initial feasibility study of CHATTERBOX in NHS Tayside and NHS Highland

The first part of DAPER III was a field trial, in NHS Tayside and NHS Highland, of the Parental Dental Concerns Scale (PDCS) and CHATTERBOX, to assess the concerns that parents had and provide tailored interventions (Wanyonyi et al., 2011) through DHSWs. The two NHS Boards differed on the type of Childsmile programme first introduced; a fully integrated Childsmile model (Core, Practice, Nursery & School) was introduced in NHS Highland, while in NHS Tayside, Childsmile Nursery & School was introduced prior to Childsmile Practice.

In this initial CHATTERBOX (DAPER 111) project, the dental concerns of parents who failed to take their children for their dental appointment was assessed using the PDCS. Any change in dental concerns following tailored support by the DHSW was then explored. Low levels of recruitment into the study highlighted the difficulty in accessing this subgroup

of vulnerable families. It uncovered DHSWs' concerns regarding visiting families and using CHATTERBOX.

Implementation of any evidence-based practice is dependent on the attitudes and behaviours of the healthcare workers, which in turn is influenced by numerous organisational and individual factors including individual motivation and ability, clarity of roles and the culture of the specific healthcare organisation (Crane et al., 2012). Therefore, a further feasibility study is required [1] to conduct a thorough process evaluation to identify implementation issues (Craig et al., 2008) including delivery and effectiveness of the CHATTERBOX intervention, which could lead to [2] a RCT to confirm the effectiveness of CHATTERBOX.

Study aim

To conduct a thorough process evaluation of the feasibility of delivering the CHATTERBOX intervention, in order to improve future CHATTERBOX service as part of Childsmile Practice. In addition, the aim is to explore the effectiveness of CHATTERBOX in reducing parental dental concerns and enabling them to access dental care for their children, with the future aim of conducting a RCT to definitively test the effectiveness of the intervention.

Parameters which the feasibility study intends to clarify or estimate for improving the CHATTERBOX service, and if relevant for a future RCT

1. Acceptability of the CHATTERBOX intervention with DHSWs.
2. Acceptability of the CHATTERBOX intervention with parents.
3. The concerns that parents have regarding attending the dentist with their young children and any change in parents' dental concerns following the intervention.
4. Parents' satisfaction with previous Childsmile experience and any change in levels of satisfaction following the intervention.
5. Parents' satisfaction with previous Dental Practice experience and any change in levels of satisfaction following the intervention.

6. The costs of development and training against the benefits of reduced DHSW time and failed to attend appointments, to inform an economic evaluation of the CHATTERBOX intervention.
7. The necessary sample size to detect a clinically relevant difference in the primary outcome variable (child dental attendance), taking into account the intra-class coefficient for clustering of families within DHSWs.
8. The number of eligible participants and follow up rates.
9. The time needed to collect and analyse data.

Table 1 Study parameters

Study parameters	**Assessment of parameters**	
	Families	**DHSWs**
Parents' concerns about accessing dental care for their children	Parental Dental Concerns Scale (at baseline and follow up and between control and intervention conditions)	
Previous satisfaction with dental care	Dental Visit Satisfaction Scale (at baseline and follow up and between control and intervention conditions)	
Previous satisfaction with Childsmile service	Client Satisfaction Questionnaire (at baseline and follow up and between control and intervention conditions)	
Parent's attachment style	Relationship Questionnaire	
Dental attendance	Records of registration and attendance (accessed via ISD and compared between control and intervention conditions)	

Acceptability of the CHATTERBOX intervention	Engagement with Chatterbox, completion of questionnaires, cancelled visits/ missed visits (with DHSW or practice), dental attendance.	Number of home visits where CHATTERBOX was used/not used; Interviews with DHSW; DHSW house visit dairy/notes.
Economic evaluation		Number of training sessions; Length of sessions; Trainer time and costs; Staff time; E-mails sent and time spent in replying to queries; Cost of producing the CHATTERBOX kits; Comparison of number of visits, average length of visits and distance travelled, between intervention and control groups.

Study design

This is a feasibility study to explore the acceptability and practicality of delivering the CHATTERBOX intervention (primary outcome) and to explore the need for conducting an RCT (secondary outcome) to test the effectiveness of CHATTERBOX.

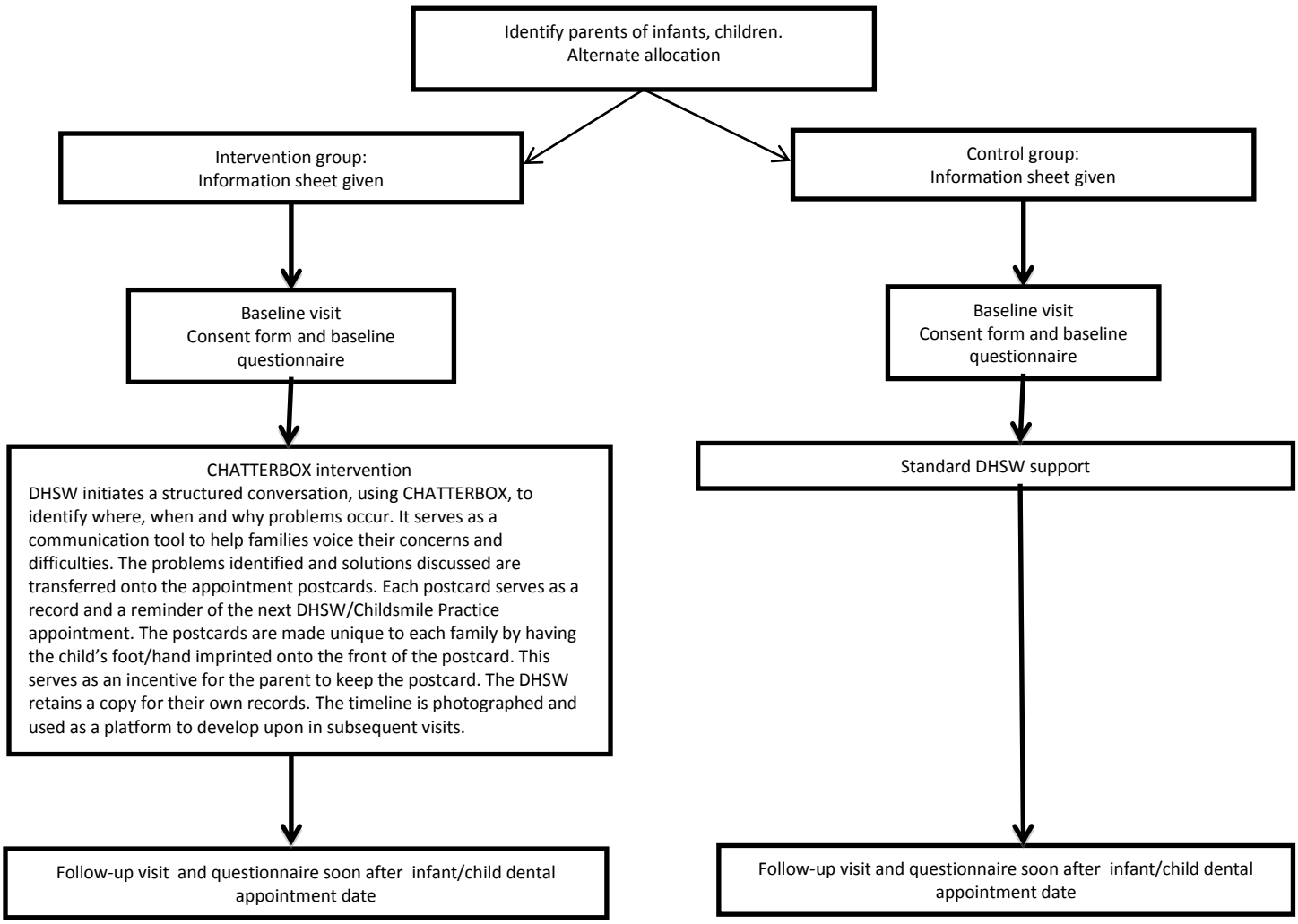
Study description

This is a non-randomised feasibility trial, where the families are grouped into the intervention or control conditions based on alternate allocation.

Study flowchart

This is a non-randomised feasibility trial, as shown in figure 1.

Figure 1 study flowchart



Plan of investigation

Ethical approval

Ethical approval for the study will be obtained from NHS REC.

Study population

Parents of infants and young children living in NHS Ayrshire and Arran who are visited by DHSWs in their homes.

Inclusion criteria

Parents with sufficient knowledge of English to complete the questionnaire, parents without learning difficulties and parents who consent to participate.

Exclusion criteria

Parents with learning difficulties, parents who do not understand English and parents who do not consent to participate.

Participant selection, enrolment and allocation

All parents of infants and young children living in NHS Ayrshire and Arran, who are visited by the DHSWs in their homes, will be invited to participate. The DHSWs will allocate alternate families into the questionnaire only (control) group and CHATTERBOX (intervention) group. Participants will be given the appropriate (control or intervention) information sheet about taking part in the study. Having read through the information sheet, participants after an appropriate cooling off period will be asked whether they wish to take part in the study. Those that wish to do so will be asked to sign the consent form. All participants will then be asked to complete the study baseline questionnaire (Figure 1).

Data collection and CHATTERBOX intervention

Data will be collected from all participants using Questionnaires administered by the DHSW at baseline and follow-up (Table 2)

Table 2 Questionnaire data

	TIME	
Questionnaire	**Baseline**	**Follow-up**
Parental Dental Concerns Scale	X	X
Dental Visit Satisfaction Scale	X	X
Client Satisfaction Questionnaire	X	X
Relationship Questionnaire	X	

At baseline all parents will be asked to complete the baseline Questionnaire comprising the Parental Dental Concerns Scale (PDCS) to assess their dental concerns, the Dental Visit Satisfaction Scale (Corah et al., 1984) to assess previous satisfaction with dental care, the Client Satisfaction Questionnaire 8 (CSQ8) to assess previous satisfaction with Childsmile, and the single item Relationship Questionnaire (Bartholomew and Horowitz , 1991) to assess attachment style.

In families assigned to the intervention group the DHSW will use CHATTERBOX to initiate a structured conversation with parents and identify any dental concerns. The concerns and solutions identified by using CHATTERBOX will then be addressed by the DHSWs who will provide support tailored to the needs of the family. Taking the wishes of each family into consideration, the DHSWs will make an appointment for the child with a Childsmile practice and will continue to provide assistance up until the family attends the dentist. They will continue to monitor the family to assess compliance and address any remaining concerns. Details of the support provided will be noted, including referral for healthcare as appropriate.

In families assigned to the control group, the DHSWs will provide the standard support provided to families in NHS Ayrshire and Arran. Details of the support provided will be noted, including referral for healthcare as appropriate.

After the date of the dental attendance visit, all participating parents will be asked to complete the follow-up Questionnaire comprising of the PDCS, the Dental Visit Satisfaction Scale, the CSQ8 and details of dental registration and attendance.

Dental registration and attendance details will be validated using ISD data.

Statistical analysis

The data will be coded and entered into SPSS. The data will be subjected to frequency distributions, chi-squared analysis, regression analysis and t-tests. The means and standard deviations will be tabulated for use in the preparation of a full RCT study. Estimations of effect and sample sizes will be calculated.

Process evaluation and qualitative exploration

A process evaluation and qualitative exploration of the factors influencing the behaviours of the DHSWs and other dental care professionals involved in the study, will be conducted. Interviews will be carried out at regular intervals during the course of the study. The dates, times and venues for the interviews will be based on participant convenience. The evaluation will be carried out in order to monitor progress and examine the implementation process of the intervention. This will assist in refining the design and future implementation of the intervention by Childsmile. The interviews will be audio-recorded. Audio files will be treated as confidential and will be stored on a password-protected PC and destroyed after the end of the study.

Participants will be asked to identify Strengths, Weaknesses, Opportunities and Threats (SWOT model) to the intervention and the implementation process. The DHSWs will be invited to speak in depth about their experiences with CHATTERBOX. Later discussions will build on previous dialogues and focus on any specific areas highlighted in previous sessions. Before commencement of the evaluation, the staff will be given an information sheet about the evaluation and asked to sign a consent form.

In addition, the DHSWs will be asked to keep a dairy of their experiences when visiting each house. This adds a valuable dimension (context) to the implementation process, permitting a more robust realistic evaluation (Pawson & Tilly, 1997).

Data analysis

The transcripts of the interviews will be analysed using framework analysis (Ritchie & Spencer, 1994; Srivatsava and Thomson, 2009). Framework analysis is an appropriate method for interpreting and describing issues relating to a particular setting (Ritchie & Spencer, 1994; Srivatsava and Thomson, 2009), such as issues relating to acceptance and engagement with CHATTERBOX and home visits by DHSWs.

The analysis involves five steps (Ritchie & Spencer, 1994; Srivatsava and Thomson, 2009):

1. Familiarisation: becoming aware of ideas and common themes in the transcripts of the interviews.

2. Identifying a thematic framework: data is filtered and classified to bring out relevant and important issues, and identify emerging connections between ideas.

3. Indexing: portions of the data corresponding to particular themes are picked out and placed under specific themes or headings.

4. Charting: indexed data is arranged in charts of the various themes.

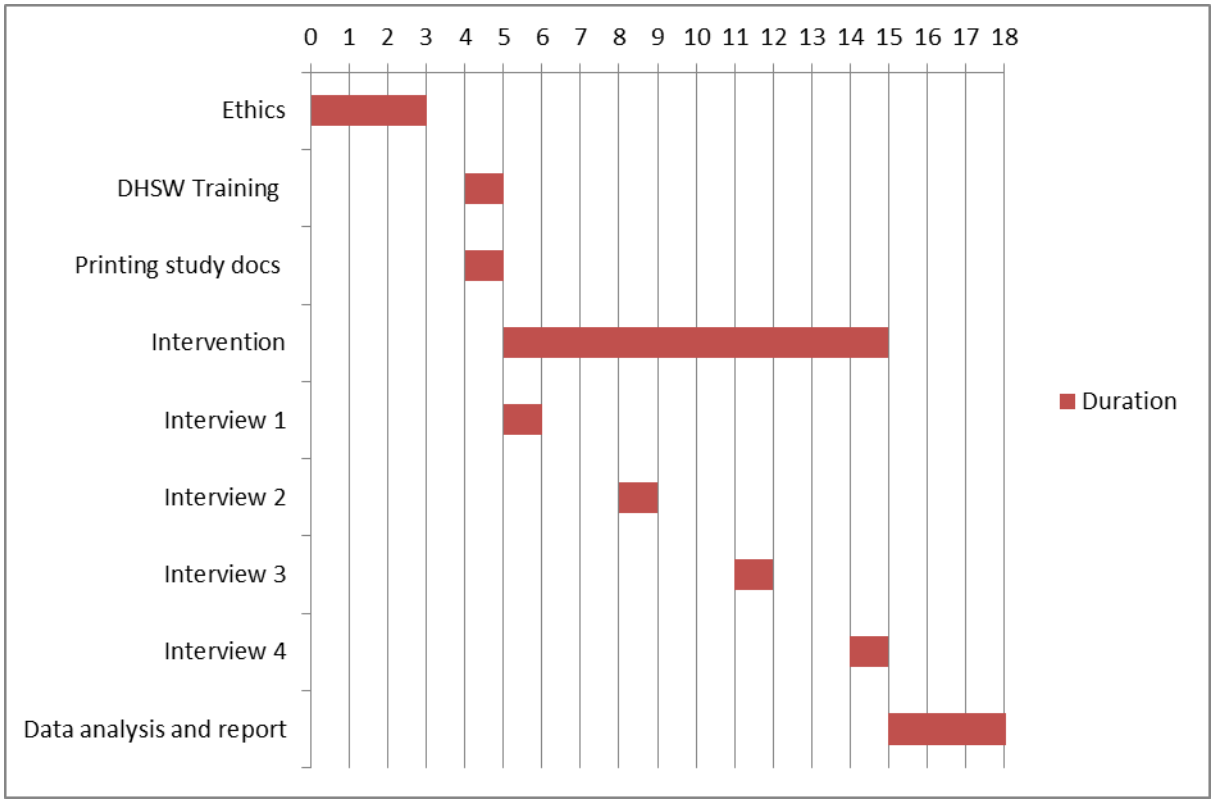
5. Mapping and interpretation: data is analysed based on the key characteristics laid out in the charts. This provides a schematic diagram of the facilitators and barriers that DHSWs face when delivering oral health interventions to vulnerable families in their homes.

Economic evaluation

To inform any economic evaluation of using the CHATTERBOX intervention, additional information will be collected. This will include the number of training sessions undertaken, length of each session, costs of trainer, emails sent and time spent in replying to queries, and staff time and costs relating to the provision of the CHATTERBOX intervention. In addition, the number of DHSW visits, duration of visits and distance travelled will be compared between the intervention and control conditions. The feasibility study will also determine if and how this data can be collected and will identify the best framework for evaluating this

intervention. The appropriate time period across which costs and outcomes are expected to differ will also be explored.

Timetable



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Acknowledgements

We would like to acknowledge the Childsmile programme (award number: 121.804490) who funded this study.

Stephanie Chambers for conducting Phase I and Phase II of the DAPER study and attending CHATTERBOX meetings.

Stephanie Fulke, Rebecca Lindsay and Hazel White , Duncan of Jordanstone College of Art and Design, for designing and producing CHATTERBOX .

We would like to thank the families who took part in this phase of the project. We are indebted to them for the time they spent speaking with us.

We would also like to thank the Childsmile staff at NHS Tayside and NHS Highland for taking time to speak with us about home visits, Childsmile Practice and the implementation of the CHATTERBOX intervention. .

We would like to thank Anne Strickland for her assistance in formatting and preparation of this report.

Appendices

- Appendix 1: Ethical Approval Documents
- Appendix 2: NHS Project Approval Documents
- Appendix 3: Questionnaires
- Appendix 4: Training Material
- Appendix 5: Chatterbox poster
- Appendix 6: Childsmile Practice pathway

Appendix 1 – Ethical Approval Documents

- Parental information sheet
- Parental consent form
- Staff information sheet
- Staff consent form
- REC approval letters

The DAPER field trial of the Parental Dental Concerns Scale

to enable child dental registration

Participant Information Sheet

We invite you to take part in a research project. We believe it to be of potential importance. However, before you decide whether or not you wish to take part, we need to be sure that you understand why we are doing it, and what it would involve if you agreed. We are therefore providing you with the following information. Please read it carefully. If you have any questions please feel free to discuss it with the researcher or contact us on the numbers below, and, if you want, discuss it with other people. We will do our best to explain and to provide any further information you may ask for now or later.

What is the purpose of this study?

This study is hoping to improve access to dentists for children. We are trying to identify parents in Scotland who are concerned about accessing dental health care for their child and help them by providing extra support to access dental care. We know that other things like travel expenses or feeling down can stop people going to the dentist, and so we will ask you questions about these things too, so that we can tailor the support provided by your Oral Health Support Worker (OHSW) according to your needs. We would like to ask you to help us with the study.

Why have I been chosen?

When you signed up to Childsmile you indicated that you were happy to be contacted to help with the programme's evaluation. We are contacting parents who may require additional help to access dental care for their child.

Do I have to take part in this study?

No, taking part is completely up to you. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason. Just inform the researcher or OHSW. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you or your family will receive. Any identifiable information already collected will be destroyed. Any non-identifiable information will be retained.

What will happen to me if I take part?

If you agree to take part, we will ask you to:

Fill in a questionnaire about how you feel about going to the dentist, and your family life.

This should take around 10 minutes and can be done at a time and place best for you.

Your Oral Health Support worker will arrange to visit you and give you additional tailored support according to your needs, to help you access dental care for your child

We will phone you about 4 weeks later to arrange a good time to fill in a second questionnaire.

The second questionnaire lets us know whether you have found the additional help from Childsmile useful

Finally, we will ask you to fill in the second questionnaire.

This is shorter than the first one and should take around 5 minutes to complete.

We would also need to have access to your child's CHI number, in order to get their dental registration and attendance details from the Health Informatics Centre, Dundee.

What about confidentiality?

All information given by you during the study will be kept strictly confidential. Personal information, such as your name and address, will be kept separately from your questionnaire answers. Personal information will be kept till the end of the study period (one year) and then destroyed. Questionnaire answers will be kept for 5 years and then destroyed. When the results are written up, no names will be used. No one will be able to link any information to you or your family. All information will be stored in a safe place that can only be accessed by the researchers working on this study.

Are there any risks for me if I decide to take part in this study?

There is unlikely to be any risk to you if you wish to take part in the study. However, if you feel uncomfortable answering any of the questions, then please move onto the next question. If any problems are raised, and you feel you need more support, then with your permission, we would be happy to contact your health visitor or GP to follow this up with you.

What will happen to the results of the research study?

The results of the study will be written up as part of a project report, and they will be published in professional academic journals. If you would like to receive a copy of the results from the study then please get in touch with the researchers on the numbers given below.

Who is organising and funding the research?

The study is sponsored by the University of Dundee and NHS Tayside. The Scottish Government is funding the study.

What if there is a problem?

If you have a complaint about your participation in the study you should first talk to a researcher involved in your care. You can ask to speak to a senior member of the research team, or the Complaints Officer for NHS Highlands.

In the event that something goes wrong and you are harmed during the study there are no special compensation arrangements. If you are harmed and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Dundee but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you (if appropriate).

For NHS Highlands:

The Complaints Team
NHS Highland
PO BOX 5713
Inverness IV1 9AQ
Phone: 01463 705 997
Email: nhshighland.complaints@nhs.net

Who has reviewed the study?

The East of Scotland Research Ethics Committee REC 2, which has responsibility for scrutinising all proposals in Tayside for medical research on humans, has examined the proposal and has raised no objections from the point of view of medical ethics. It is a requirement that your records in this research, together with any relevant records, be made available for scrutiny by monitors from the University of Dundee and NHS Tayside, whose role is to check that research is properly conducted and the interests of those taking part are adequately protected.

Contact for further information

If during the course of the study you have any questions concerning the nature of the study, please contact Sucharita Nanjappa on 01382 381 713 or Sheela Tripathee on 01382 381 717

Or write to: Sucharita Nanjappa

Research Fellow

Dental Health Services Research Unit

9th Floor Dental School

University of Dundee

Park Place

Dundee DD1 4HN

Thank you for considering taking part in this study.

Version 1.2 10/05/2012

The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration
Written Consent Form

Participant number: ☐☐☐☐☐

PLEASE INITIAL EACH BOX

- I confirm that I have read and understood the information sheet (v 1.2 10/05/2012) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
- I agree to Childsmile staff/research team contacting me 4 weeks from now, to carry out a second questionnaire. ☐
- I understand that the data will be written up with all identifying information removed. Identifying information will be destroyed at the end of the study period. ☐
- I understand that if I reveal information suggesting that I may harm my child, the relevant authorities must be informed. ☐
- I understand that I can withdraw from the study at any time and for any reason and that this will not affect the care that myself or my family receive from health staff. ☐
- I understand that if I withdraw from the study any non-identifiable information already collected will be retained. ☐
- I give permission for the research team to have access to my child's CHI number in order to access my child's dental registration and attendance details, via the Health Informatics Centre (HIC), Dundee. ☐
- I agree to take part in the study. ☐

PLEASE SIGN YOUR NAME TO CONFIRM YOU ARE HAPPY TO TAKE PART IN THIS STUDY

Name of participant _____

Signature of participant _____ Date_____

(Please note that participants must date their own signature)

Name of person taking consent _____

Signature of person taking consent _____ Date_____

The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration

Participant Information Sheet- Staff version

INVITATION TO TAKE PART IN A RESEARCH STUDY

You are being asked to take part in a research study to evaluate the implementation of the DAPER (Developing an inventory to Access Parental concerns and enable child dental Registration) Intervention.

PURPOSE OF THE RESEARCH STUDY

This study is being carried out as a service evaluation to evaluate the 'DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration' study intervention. The evaluation will be carried out in order to monitor progress and examine the implementation process of the intervention. This would assist in refining the design and future implementation of the intervention by Childsmile.

TIME COMMITMENT

The study will require you to take part in one group interview session every two months on an on-going basis during the implementation of the DAPER intervention. The researcher Sucharita Nanjappa will be in touch with you via e-mail to arrange a date, time and venue suitable to all participating staff. Interviews will last up to one hour and will be digitally audio-recorded.

TERMINATION OF PARTICIPATION

You may decide to stop being a part of the research study at any time without explanation and without penalty.

CONFIDENTIALITY/ANONYMITY

The audio files will be treated as confidential and will be stored on a password-protected PC and destroyed at the end of the study. The results will used in peer-reviewed papers and be published in final report. Participants will not be identifiable.

FOR FURTHER INFORMATION ABOUT THIS RESEARCH STUDY

Sucharita Nanjappa will be glad to answer your questions about this study at any time. If you want to find out about the final results of this study, you should contact:

Sucharita Nanjappa, DHSRU, Dundee Dental School, University of Dundee, DD1 4HN.
s.nanjappa@dundee.ac.uk Telephone 01382 381713

The East of Scotland Research Ethics Service (EoSRES) REC 2 has reviewed and gave a favourable ethical opinion for this research study.

Thank you for considering taking part in this study

Consent form – Staff Version 1.0 07/11/2012

The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration
Written Consent Form

Participant number: ☐☐☐☐☐

PLEASE INITIAL EACH BOX

- I confirm that I have read and understood the information sheet (v 1.0 07/11/2012) for the above study. I have had the opportunity to ask questions and have had these answered satisfactorily. ☐
- I agree to the research team digitally audio-recording the interview. ☐
- I understand that the audio files will be treated as confidential, stored on a password-protected PC and destroyed at the end of the study. ☐
- I understand that I can withdraw from the study at any time and for any reason which I do not need to disclose. ☐
- I understand that if I withdraw from the study any non-identifiable information already collected will be retained. ☐
- I agree to take part in the study. ☐

PLEASE SIGN YOUR NAME TO CONFIRM YOU ARE HAPPY TO TAKE PART IN THIS STUDY

Name of participant _____

Signature of participant _____ Date_____

(Please note that participants must date their own signature)

Name of person taking consent _____

Signature of person taking consent _____ Date_____

EoSRES

NHS SCOTLAND

East of Scotland Research Ethics Service (EoSRES) REC 1
(formerly Tayside Committee on Medical Research Ethics A/B)
Tayside Medical Sciences Centre (TASC)
Residency Block C, Level 3
Ninewells Hospital & Medical School
George Pirie Way
Dundee DD19SY

Professor Ruth Freeman
Professor of Dental Public Health Research
University of Dundee
DHSRU, MacKenzie Building
Kirsty Semple Way
Dundee
DD2 4BF

Date:	09 May 2012
Your Ref:	
Our Ref:	LR/12/ES/0037
Enquiries to:	Mrs Lorraine Reilly
Extension:	Ninewells extension: 40099
Direct Line:	01382 740099
Email:	lorraine.reilly@nhs.net

Dear Professor Freeman

Study title: **The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration**
REC reference: **12/ES/0037**

The Research Ethics Committee reviewed the above application at the meeting held on 01 May 2012. Thank you and Ms Sucharita Nanhappa for attending to discuss the study.

Ethical opinion

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

You clarified the following points. There is no requirement to respond unless there are any inaccuracies:

1. The Committee noted the high standard of presentation of this application.

2. The Committee queried what procedures were in place for parents who may not just be distressed about attending the dentist but were distressed in general- Professor Freeman confirmed that for the majority of children who were dentally phobic their mothers were dentally phobic also. There is a policy in place in NHS Tayside and NHS Highland called CHEW (Child Health Early Warning) who have dental factors to alert them of children who do not attend their appointments through child agencies. If a child becomes distressed there are referral pathways to link into child psychology and social services. If they missed two general anaesthetic appointments they were put on a general at risk register.

3. The Committee suggested that researchers might attend a course on child protection which raises awareness of issues that might arise - Professor Freeman confirmed she had written a chapter in a book regarding child protection. She clarified that dental health support workers training should pick these up and the staff should have a policy in place at the practice to deal with children who were suffering from abuse.

POSITIVE ABOUT DISABLED PEOPLE

4. The Committee commented on the sample size in A13 design and methodology and A59 of 200 patients in order to get 63 participants and wondered if it was achievable if participation rate was less than 50% – Professor Freeman confirmed that they would keep recruiting until they reached their target. Professor Freeman clarified the history of the study as phase III was being reviewed at the meeting. Phase I was a series of in-depth interviews for families who did not have access to dental services including mothers who were suffering from severe depression. Phase II used a reliable questionnaire and Phase III was a short form to see if they could come up with a solution to concerns with non-attendees at dental practices.

The following points require to be addressed by letter and submission of revised documentation where requested. **Please note that there is no requirement to amend your application form.**

1. Regarding the application form:

   - The Committee required clarification that the identifiable data being held on an encrypted memory stick was secure.

   - Please clarify the start date as A69-1 states start date as 01/04/2012 however the committee meeting reviewing the application took place on 01/05/2012.

2. Regarding the Participant Information Sheet:

   - Please insert a section informing participants what they are required to do if they wish to withdraw from the study and what would happen with the data collected up to that point as per A35 of the application form.

   - Under 'Contact for further information' – please ensure the mobile phone number is departmental and not a personal mobile number.

   - Please adapt and insert the appropriate paragraph below under 'Who has reviewed the study?'

     'The East of Scotland Research Ethics Committee REC 2, which has responsibility for scrutinising all proposals for medical research on humans in Tayside, has examined the proposal and has raised no objections from the point of view of medical ethics. It is a requirement that your records in this research, together with any relevant records, be made available for scrutiny by monitors from the University of St Andrews and NHS Tayside, whose role is to check that research is properly conducted and the interests of those taking part are adequately protected.'

3. Regarding the Consent Form:

   - Insert a statement which reflects A35 of the application form.

   - Please ensure there are tick boxes at all statements.

Ethical review of research sites

NHS Sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Confirmation should also be provided to host organisations together with relevant documentation

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Evidence of insurance or indemnity		
Investigator CV		03 April 2012
Letter from Sponsor		30 March 2012
Other: Letter from Funder - Childsmile		11 June 2008
Other: CV - Professor Humphris		04 April 2012
Other: CV - Sucharita Nanjappa		04 April 2012
Participant Consent Form	1.1	29 March 2012
Participant Information Sheet: Highland	1.1	29 March 2012
Participant Information Sheet: Tayside	1.1	29 March 2012
Protocol	1.2	29 March 2012
Questionnaire: Questionnaire 1	1.0	20 March 2012
Questionnaire: Questionnaire 2	1.0	20 March 2012
REC application	101492/311611/1/328	04 April 2012

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

12/ES/0037:	***Please quote this number on all correspondence***

Yours sincerely

Dr Fergus Daly
Co-opted Chair

Email: lorraine.reilly@nhs.net

Enclosures:	List of names and professions of members who were present at the meeting and those who submitted written comments. "After ethical review – guidance for researchers"
Copy to:	NHS Tayside R&D office

EoSRES

NHS SCOTLAND

Research Ethics Service

East of Scotland Research Ethics Service (EoSRES) REC 2
(formerly Tayside Fife & Forth Valley REC)
Tayside Medical Sciences Centre (TASC)
Residency Block C, Level 3
Ninewells Hospital & Medical School
George Pirie Way
Dundee DD19SY

Professor Ruth E Freeman
Professor and Hon Consultant in Dental Public Health
University of Dundee
DHSRU, Dundee Dental School
Park Place
Dundee
DD1 4HN

Date: 05 December 2012
Your Ref:
Our Ref: LR/12/ES/0037
Enquiries to: Mrs Lorraine Reilly
Direct Line: 01382 383878
Email: lorraine.reilly@nhs.net

Dear Professor Freeman

Study title: **The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration**
REC reference: **12/ES/0037**
Amendment number: **AM01**
Amendment date: **12 November 2012**
IRAS project ID: **101492**

The above amendment was reviewed at the meeting of the Sub-Committee held on 04 December 2012.

Ethical opinion

There were no ethical issues noted.

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Notice of Substantial Amendment (non-CTIMPs)	AM01	12 November 2012
Protocol	2.0	07 November 2012
Participant Information Sheet: Staff	1.0	07 November 2012
Participant Consent Form: Staff	1.0	07 November 2012
Interview Schedules/Topic Guides		

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

12/ES/0037:	***Please quote this number on all correspondence***

Yours sincerely

L. Reilly

p.p.

Ms Tara Graham
Vice-chair

eosres.tayside@nhs.net

Enclosures: List of names and professions of members who took part in the review

Copy to: NHS Tayside R&D office

Appendix 2: NHS Project Approval Documents

- R&D Management approval NHS Tayside
- R&D Management approval NHS Highland
- Letter of access for research NHS Tayside
- Letter of access for research NHS Highland
- Acceptance of amendment letter NHS Tayside
- Acceptance of amendment letter NHS Highland

NHS Tayside

25 May 2012

Professor Ruth Freeman
Professor of Dental Public Health Research
DHSRU
Mackenzie Building
Kirsty Semple Way
DUNDEE
DD2 4BF

Dear Professor Freeman,

R & D MANAGEMENT APPROVAL – TAYSIDE

Title: The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration.

Chief Investigator: Professor Ruth Freeman **Local Collaborator: Mrs Donna Kirk**

Tayside Ref: 2012DE03 **NRS Ref: NRS12/GH51**

REC Ref: 12/ES/0037

Sponsors: University of Dundee and NHS Tayside

Funder: Childsmile

Many thanks for your application to carry out the above project here in NHS Tayside. I am pleased to confirm that the project documentation (as outlined below) has been reviewed, registered and Management Approval has been granted for the study to proceed locally in Tayside.

Approval is granted on the following conditions:-

- ALL Research must be carried out in compliance with the Research Governance Framework for Health & Community Care, Health & Safety Regulations, data protection principles, statutory legislation and in accordance with Good Clinical Practice (GCP).
- All amendments to be notified to TASC R & D Office.
- All local researchers must hold either a Substantive Contract, Honorary Research Contract, Honorary Clinical Contract or Letter of Access with NHS Tayside where required (http://www.nihr.ac.uk/systems/Pages/systems_research_passports.aspx).
- TASC R & D Office to be informed of change in Principal Investigator, Chief Investigator or any additional research personnel locally.
- Notification to TASC R & D Office of any change in funding.
- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until destruction of this data.

Version 3 – 15/03/12

- All eligible studies will be added to the UKCRN Portfolio http://public.ukcrn.org.uk/. Recruitment figures for eligible studies must be recorded onto the Portfolio every month: This is the responsibility of the lead UK site. If you are the lead, or only, UK site, we can provide help or advice with this. For information, contact Charles Weller – (01382) 7 40128 – charles.weller@nhs.net or Liz Livingstone – (01382) 7 40126 – elivingstone@nhs.net.

- Annual reports are required to be submitted to TASC R & D Office with the first report due 12 months from date of issue of this management approval letter and at yearly intervals until completion of the study.

- Notification of early termination within 15 days or End of Trial within 90 days followed by End of Trial Report within 1 year to TASC R & D Office.

- You may be required to assist with and provide information in regard to audit and monitoring of study.

Please note you are required to adhere to the conditions, if not, NHS management approval may be withdrawn for the study.

Approved Documents

Document	Version	Date
Protocol	**1.2**	**29/03/12**
PIS	**1.2**	**10/05/12**
Consent Form	**1.2**	**10/05/12**
Questionnaire 1	**1.0**	**20/03/12**
Questionnaire 2	**1.0**	**20/03/12**
Sponsor Letter – University of Dundee and NHS Tayside		**30/03/12**
Insurance Note – University of Dundee		**30/03/12**
Ethics – Evidence of Compliance		**16/05/12**
Ethics – Favourable Ethical Opinion		**09/05/12**
NHS R&D Form (101492/312197/14/213)		**10/04/12**
NHS SSI Form (101492/312199/6/963/147320/240650)		**16/04/12**
CV – Ruth Freeman		**03/04/12**
Funder Letter – Childsmile		**11/06/08**

May I take this opportunity to wish you every success with your project.

Please do not hesitate to contact TASC R & D Office should you require further assistance.

Yours sincerely

Elizabeth Coote
R&D Manager

Version 3 – 15/03/12

Professor Angus Watson
Research & Development Director
NHS Highland Research & Development Office
Room S101
Centre for Health Science
Old Perth Road
Inverness
IV2 3JH

Tel: 01463 255822
Fax: 01463 255838
E-mail: angus.watson@nhs.net

NHS Highland

26 May 2012

NHS Highland R&D ID: **840**
NRSPCC ID: **NRS12/GH51**

Dr David Babb
Senior Dental Officer
Dental Services
John Dewar Building
Highlander Way
Inverness
IV2 7GE

Dear Dr Babb,

Management Approval for Non-Commercial Research

I am pleased to tell you that you now have Management Approval for the research project entitled: **'The DAPER Field Trial of the Parental Dental Concerns Scale – Version 1'.** I acknowledge that:

- The project is co-sponsored by NHS Tayside and the University of Dundee.
- The project is funded by Childsmile.
- Research Ethics approval for the project has been obtained from the East of Scotland 2 Research Ethics Committee
- The project is Site-Specific Assessment exempt.

The following conditions apply:

- The responsibility for monitoring and auditing this project lies with NHS Tayside and the University of Dundee.
- This study will be subject to ongoing monitoring for Research Governance purposes and may be audited to ensure compliance with the Research Governance Framework for Health and Community Care in Scotland (2006, 2nd Edition), however prior written notice of audit will be given.
- **Ms Sucharita Nanjappa requires a Research Passport and Letter of Access prior to starting the project at this site.**
- All amendments (minor or substantial) to the protocol or to the REC application should be copied to the NHS Highland Research and Development Office together with a copy of the corresponding approval letter.
- The paperwork concerning all incidents, adverse events and serious adverse events, thought to be attributable to participant's involvement in this project should be copied to the NHS Highland R&D Office.

Please report the information detailed above, or any other changes in resources used, or staff involved in the project, to the NHS Highland Research and Development Manager, Frances Hines (01463 255822, frances.hines@nhs.net).

Yours sincerely,

Professor Angus Watson
NHS Highland Research and Development Director

cc Frances Hines, R&D Manager, NHS Highland Research & Development Office, Room S101, The Centre for Health Science, Old Perth Road, Inverness, IV2 3JH
Pamela Shand, Senior Administrator, NHS Research Scotland Coordinating Centre, Research & Development Office, Foresterhill House Annexe, Foresterhill, Aberdeen, AB25 2ZB
Sucharita Nanjappa, Research Fellow (DAPER), Dental Health Services Research Unit, University of Dundee, Mackenzie Building, Kirsty Semple Way, Dundee, DD2 4BF

NHS
Tayside

EC/DH

07 February 2013

Dr Sucharita Nanjappa
Flat 1
30 Shaftesbury Place
Dundee
DD2 1JX

Dear Dr Nanjappa,

Letter of Access for Research

NRS Project ID: NRS12/GH51

Tayside R&D Project ID: 2012DE03

Title: The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration.

Main REC Ref: 12/ES/0037

Funder: Childsmile (NHS Health Scotland)

Sponsor: University of Dundee & NHS Tayside

Chief Investigator: Professor Ruth Freeman

This letter confirms your right of access to conduct research through NHS Tayside for the purpose and on the terms and conditions set out below. This right of access commences on 07/02/13 and ends on study completion unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at NHS Tayside has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to NHS Tayside premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through NHS Tayside, you will remain accountable to your employer University of Dundee but you are required to follow the reasonable instructions of Professor Ruth Freeman

in this NHS organisation (Honorary Consultant) or those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with NHS Tayside policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with NHS Tayside in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on NHS Tayside premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

NHS Tayside will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager and R&D Office in this NHS organisation.

Yours sincerely

Elizabeth Coote
R&D Manager
NHS Tayside

cc: Workforce Directorate in NHS Tayside
Susan Hunter at University of Dundee HR
Professor Ruth Freeman

Recruitment & Employment Services Section
Human Resource Services
Raigmore Hospital, Old Perth Road
Inverness IV2 3UJ
Telephone 01463 704000
Fax 01463 704598
Textphone users can contact us via
Typetalk: Tel 0800 959598
www.nhshighland.scot.nhs.uk

NHS Highland

Miss Sucharita Nanjappa
University of Dundee
DHSRU
Mackenzie Building
Kirsty Semple Way
Dundee
DD2 4BF

Date 15 May 2013
Your Ref
Our Ref

Enquiries to
Extension 5914
Direct Line 01463 705914
Email carol.mackay@nhs.net

Dear Miss Nanjappa

Letter of Access for Research

Study Title: The DAPER Field Trial of the Parental Dental Concerns Scale to Enable Child Dental Registration

This letter confirms your right of access to conduct research through NHS HIGHLAND for the purpose and on the terms and conditions set out below. This right of access commences on 01/05/12 and ends on 31/07/13 as the project has been extended unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at NHS HIGHLAND has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to NHS HIGHLAND premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through NHS HIGHLAND you will remain accountable to your employer **the University of Dundee** but you are required to follow the reasonable instructions of **Dr Cathy Lush Clinical Dental Director** in this NHS organisation or those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with NHS HIGHLAND policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with NHS HIGHLAND in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on NHS HIGHLAND premises. You must observe the same standards of

NHS Highland

care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

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If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely

John Huband
Head of Recruitment and Employment Services

cc: R&D office at NHS Highland
Dr Catherine Lush, Clinical Dental Director, Dental Services, John Dewar Building
HR Department, University of Dundee, Tower Building, 7th Floor, Perth Road, Dundee, DD1 4HN

Please sign BOTH copies of this letter below, retain ONE and return the other to Frances Hines, NHS Highland R&D Manager (address below).

Signed : S. Nanjappa Date: 21/05/2013

NHS
Tayside

Wednesday, 06 March 2013

Prof Ruth Freeman
Professor & Hon Consultant in Dental Public Health
University of Dundee
DHSRU, Dundee Dental School
Park Place
Dundee
DD1 4HN

Dear Prof Freeman,

ACCEPTANCE OF AMENDMENT LETTER

Tayside R&D Project ID: 2012DE03 **NRS Project ID: NRS12/GH51**

Title: The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration.

REC Ref: 12/ES/0037

Chief Investigator: Ruth Freeman

Amendment Number: AM01 **Amendment Date: 12/11/12**

The documents reviewed and approved were:

Document	Version	Date
REC favourable opinion	AM01	05/02/13
Notice of substantial amendment (non CTIMPs)	AM01	12/11/12
Protocol	2.0	07/11/12
PIS – Staff	1.0	07/11/12
Consent – staff	1.0	07/11/12
Interview schedules/topic guides		

Thank you for submitting the above amendments for review by the R&D Office here in NHS Tayside. Following my assessment of the proposed changes I am pleased to confirm that NHS Tayside has no objection to these being implemented locally.

I thank you for keeping TASC R&D office informed of the study progress.

Please note all minor/substantial amendments and end of trial notifications must be reported to the R&D Office.

Kind Regards,

Elizabeth Coote
Approvals Manager
TAyside medical **S**cience **C**entre (TASC)
Ninewells Hospital & Medical School
TASC Research & Development Office
Residency Block, Level 3
George Pirie Way
Dundee DD1 9SY
Email: liz.coote@nhs.net
Tel: 01382 383876 Fax: 013812 740122

Document: 17/08/10, V1

R&D Ref No:	**840**
REC Ref No:	**12/ES/0037**
NRS Ref No:	**NRS12/GH51**
EudraCT Ref No:	**NA**
MHRA Ref No:	**NA**
Today's Date:	**08/01/2013**

Professor Angus Watson
Research & Development Director
NHS Highland Research & Development Office
Room S101
Centre for Health Science
Old Perth Road
Inverness
IV2 3JH

Tel: 01463 255822
Fax: 01463 255838
E-mail: angus.watson@nhs.net

NHS Highland

Dr David Babb
Senior Dental Officer
Dental Services
John Dewar Building
Highlander Way
Inverness
IV2 7GE

Dear Dr Babb,

NOTICE OF YOUR RESEARCH PROJECT AMENDMENT
PROJECT TITLE: The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration.

Amendment Type:	**Substantial**
Amendment No:	**AM01**
Amendment Date:	**12/11/12**
Protocol Version No:	**V2.0**

We have been notified of the above amendment to your research project and have received the following documents:

- The European Notification of Substantial Amendment form;
- Amended documents correspond with those approved in the REC amendment approval letter (East of Scotland 2 Research Ethics Committee (REC approval letter dated 05/12/12)
- You have confirmed that no extra cost is incurred

POSITIVE ABOUT DISABLED PEOPLE

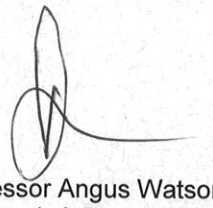
Headquarters: Assynt House, Beechwood Park, INVERNESS IV2 3BW

Chairman: Garry Coutts
Chief Executive: Elaine Mead
Highland NHS Board is the common name of Highland Health Board

The **R&D Department**, NHS Highland, are happy to **approve** this REC approved amendment as it is within the scope of the original Management Approval Letter (29/05/12)

Could I take this opportunity to remind you to inform R&D on any future changes to the research project and please contact us on 01463 255822 if more detailed advice on Ethics or NHS Highland R&D is required.

Yours sincerely,



Professor Angus Watson
Research & Development Director

Copied to: Frances Hines, R&D Manager, Room S101, Centre for Health Science, Old Perth Road, Inverness, IV2 3JH

Sucharita Nanjappa,
Research Fellow (DAPER),
Dental Health Services Research Unit,
University of Dundee,
Mackenzie Building,
Kirsty Semple Way,
Dundee,
DD2 4BF

Appendix 3: Questionnaires

- Baseline questionnaire
- Follow-up questionnaire

Version 1.0 20/03/2012

The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration

Questionnaire 1

Participant number: ☐☐☐☐☐

We would like to ask you some questions about how you find going to the dentist and life with your young children. This will help us find out how more support can be given to families to get to the dentist. There are no right or wrong answers – we are just interested in what you think.

University of St Andrews

DENTAL HEALTH SERVICES RESEARCH UNIT

UNIVERSITY OF DUNDEE

NHS Highland

NHS Tayside

Part 1 – Going to the dentist

*These questions are about your **youngest** child going to the dentist. Don't worry if you haven't taken them to the dentist yet; just answer about what you think it would be like.*

*Please **circle** the number that shows whether you agree or disagree with each statement.*

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Dentists are family friendly.	1	2	3	4	5
Travelling to the dentist is easy.	1	2	3	4	5
Travelling to the dentist is expensive.	1	2	3	4	5

As a family who signed up to the Childsmile Practice programme we would like to know what you think about it from your experience so far.

*For each question please **circle** the number that shows how you feel about Childsmile.*

	Excellent	Good	Fair	Poor
How would you rate the quality of service you received from Childsmile?	1	2	3	4

	No, definitely not	No, not really	Yes, generally	Yes, definitely
Did you get the kind of service you wanted?	1	2	3	4

	Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	None of my needs have been met
To what extent has Childsmile met your needs?	1	2	3	4

*Again, for each question please **circle** the number that shows how you feel about the Childsmile Programme.*

	No, definitely not	No, I don't think so	Yes, I think so	Yes, definitely
If a friend were in your situation, would you recommend Childsmile to them?	1	2	3	4

	Quite dissatisfied	Indifferent or mildly indifferent	Mostly satisfied	Very satisfied
How satisfied are you with the help you received from Childsmile to get dental treatment for your child?	1	2	3	4

	Yes, they helped a great deal	Yes, they helped somewhat	No they really didn't help	No, they seemed to make things worse
Has Childsmile helped you to look after your child's teeth and gums?	1	2	3	4

	Very satisfied	Mostly satisfied	Indifferent or mildly dissatisfied	Quite dissatisfied
Overall, how satisfied are you with Childsmile?	1	2	3	4

	No, definitely not	No, I don't think so	Yes, I think so	Yes, definitely
If you wanted to get help with your child's teeth, would you go to Childsmile?	1	2	3	4

*Please help us improve our Dental services by answering some questions about a previous dental visit with your **older child**. If you do not have any other children or haven't taken them to the dentist yet please skip this section and go on to Part 2 of this questionnaire.*

*We would now like to know about how **satisfied** you were with your **older child's** dental visit. Please read each statement and **circle** the number that best shows your feelings.*

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
After talking with the dental professional, I know what the condition of my child's mouth is.	1	2	3	4	5
After talking with the dental professional, I have a good idea of what changes to expect in my child's dental health in the next few months.	1	2	3	4	5
The dental professional told me all I wanted to know about my child's dental problem(s).	1	2	3	4	5
I really felt my child was understood by the dental professional.	1	2	3	4	5
I felt that this dental professional really knew how upset my child was about the possibility of pain.	1	2	3	4	5
I felt this dental professional accepted my child as a person.	1	2	3	4	5
The dental professional was thorough in doing the procedure.	1	2	3	4	5
The dental professional was too rough when he/she worked on my child.	1	2	3	4	5
I was satisfied with what the dental professional did.	1	2	3	4	5
The dental professional seemed to know what he/she was doing during my child's visit.	1	2	3	4	5

*Please **circle** the number that best shows when your **older** child/children last visited the dentist.*

	In the last 6 months	Between 6 months and 1 year ago	Between 1 and 2 years ago	Between 2 and 3 years ago	More than 3 years ago	Child has never been to the dentist
When did your **older child** last go to the dentist?	1	2	3	4	5	6

	Less than every 6 months	Around every 6 months	Once a year	Every 18 months - 2 years	Less than every 2 years	Only when the child has a problem	Child does not go to the dentist
How often do you take your **older child** to the dentist?	1	2	3	4	5	6	7

Part 2 – Family Life

In this section, we are asking about your family life. This helps us to find out what is easy for families, and what is more difficult.

*Please read each statement and **circle** the number that shows your feelings. Please answer thinking about your **youngest** child.*

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
I feel down most days.	1	2	3	4	5
Since my child was born, I have not felt like my usual self.	1	2	3	4	5
I am happy where I am currently living.	1	2	3	4	5
Some days I feel miserable.	1	2	3	4	5
I feel settled in my home.	1	2	3	4	5
My neighbours can be difficult.	1	2	3	4	5
Some days I don't want to do anything.	1	2	3	4	5

Following are descriptions of four general relationship styles that people often report. *Please read each description and CIRCLE the letter corresponding to the style that best describes you or is closest to the way you generally are in your close relationships.*	
It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.	A
I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.	B
I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.	C
I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.	D

Part 3 – Some questions about you

If you don't mind, finally we'd like to ask a little more about you and your family. This helps us to find out the size and kind of families who might like more help in going to the dentist.

How many children currently live with you in your home?
(*please write number in the box*)

How old are these children? (please write the age of each child in the boxes below)

Age child 1:	**Age child 6:**
Age child 2:	**Age child 7:**
Age child 3:	**Age child 8:**
Age child 4:	**Age child 9:**
Age child 5:	**Age child 10:**

Please turn to the final page

What age are you at the moment?
(please write number in the box)

*Please **circle** the numbers that best describe your situation:*
(circle all that apply)

	A full time parent	Working part time	Working full time	Studying part time	Studying full time
Are you?	1	2	3	4	5

	Married	Living with partner	In a relationship	Single	Divorced	Widowed
Are you?	1	2	3	4	5	6

	Primary school	Secondary school	College	University	Still studying (college)	Still studying (university)
What is your highest level of education?	1	2	3	4	5	6

	Living in bought home	Renting privately	Renting from council/housing association	Staying with family/friends	Living in temporary housing
What is your living situation at the moment?	1	2	3	4	5

Thank you for filling out our questionnaire.

Please now place the questionnaire in the envelope, seal the envelope and hand it to the researcher.

Version 1.0 20/03/2012

The DAPER field trial of the Parental Dental Concerns Scale to enable child dental registration

Questionnaire 2

Participant number: ☐☐☐☐☐

We would like to ask you some questions about how you find going to the dentist and life with your young children. This will help us find out how more support can be given to families to get to the dentist. There are no right or wrong answers – we are just interested in what you think. Most of the questions will ask you about your YOUNGEST child.

University of St Andrews

DENTAL HEALTH SERVICES RESEARCH UNIT

UNIVERSITY OF DUNDEE

NHS Highland

NHS Tayside

Part 1 – Going to the dentist

*These questions are about your **youngest** child going to the dentist. Don't worry if you haven't taken them to the dentist yet; just answer about what you think it would be like.*

*Please **circle** the number that shows whether you agree or disagree with each statement.*

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Dentists are family friendly.	1	2	3	4	5
Travelling to the dentist is easy.	1	2	3	4	5
Travelling to the dentist is expensive.	1	2	3	4	5

As a family who signed up to the Childsmile Practice programme we would like to know what you think about it from your experience so far.

*For each question please **circle** the number that shows how you feel about Childsmile.*

	Excellent	Good	Fair	Poor
How would you rate the quality of service you received from Childsmile?	1	2	3	4

	No, definitely not	No, not really	Yes, generally	Yes, definitely
Did you get the kind of service you wanted?	1	2	3	4

	Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	None of my needs have been met
To what extent has Childsmile met your needs?	1	2	3	4

*Again, for each question please **circle** the number that shows how you feel about the Childsmile Programme.*

	No, definitely not	No, I don't think so	Yes, I think so	Yes, definitely
If a friend were in your situation, would you recommend Childsmile to them?	1	2	3	4

	Quite dissatisfied	Indifferent or mildly indifferent	Mostly satisfied	Very satisfied
How satisfied are you with the help you received from Childsmile to get dental treatment for your child?	1	2	3	4

	Yes, they helped a great deal	Yes, they helped somewhat	No they really didn't help	No, they seemed to make things worse
Has Childsmile helped you to look after your child's teeth and gums?	1	2	3	4

	Very satisfied	Mostly satisfied	Indifferent or mildly dissatisfied	Quite dissatisfied
Overall, how satisfied are you with Childsmile?	1	2	3	4

	No, definitely not	No, I don't think so	Yes, I think so	Yes, definitely
If you wanted to get help with your child's teeth, would you go to Childsmile?	1	2	3	4

*We would now like to know about how **satisfied** you were with your **youngest child's** dental visit. Please read each statement and **circle** the number that best shows your feelings.*

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
After talking with the dental professional, I know what the condition of my child's mouth is.	1	2	3	4	5
After talking with the dental professional, I have a good idea of what changes to expect in my child's dental health in the next few months.	1	2	3	4	5
The dental professional told me all I wanted to know about my child's dental problem(s).	1	2	3	4	5
I really felt my child was understood by the dental professional.	1	2	3	4	5
I felt that this dental professional really knew how upset my child was about the possibility of pain.	1	2	3	4	5
I felt this dental professional accepted my child as a person.	1	2	3	4	5
The dental professional was thorough in doing the procedure.	1	2	3	4	5
The dental professional was too rough when he/she worked on my child.	1	2	3	4	5
I was satisfied with what the dental professional did.	1	2	3	4	5
The dental professional seemed to know what he/she was doing during my child's visit.	1	2	3	4	5

Part 2 – Family Life

*In this **last** section, we are asking about your family life. This helps us to find out what is easy for families, and what is more difficult.*

*Please read each statement and **circle** the number that shows your feelings. Please answer thinking about your **youngest** child.*

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
I feel down most days.	1	2	3	4	5
Since my child was born, I have not felt like my usual self.	1	2	3	4	5
I am happy where I am currently living.	1	2	3	4	5
Some days I feel miserable.	1	2	3	4	5
I feel settled in my home.	1	2	3	4	5
My neighbours can be difficult.	1	2	3	4	5
Some days I don't want to do anything.	1	2	3	4	5

Thank you for filling out our questionnaire.

Please now place the questionnaire in the envelope, seal the envelope and hand it to the researcher.

Appendix 4: Training Material for the CHATTERBOX intervention

- Training session one: Communication skills workshop 1 & 2
- Training session two: PowerPoint presentation on use of CHATTERBOX

COMMUNICATION SKILLS

Workshop [1]

QUESTIONING, EXPLAINING AND LISTENING

INTRODUCTION

Six key elements of communication have been identified:-

- understanding non-verbal communication
- listening
- helping people to talk
- asking questions and obtaining feedback
- accepting other people's feelings
- giving feedback.

The skills involved in questioning, explaining and listening are fundamental to interviewing techniques. Communication is usually thought of as a two way process in which the dental professional initially appears to be passive, listening and the patient active, talking. This is initially a difficult situation for both dental professional and patient, since the dental professional is usually active and the patient passive - an apparent reversal of roles. Further difficulties arise as the patient may feel that the dental professional is being critical or judgmental while the dental professional may feel that [s]he is being supportive and tactful in her approach.

Other problems arise, in communication, as a result of time in consultation and the confines of the dental surgery. Both of these can cause distortion of the communication process which can further be exacerbated by:-

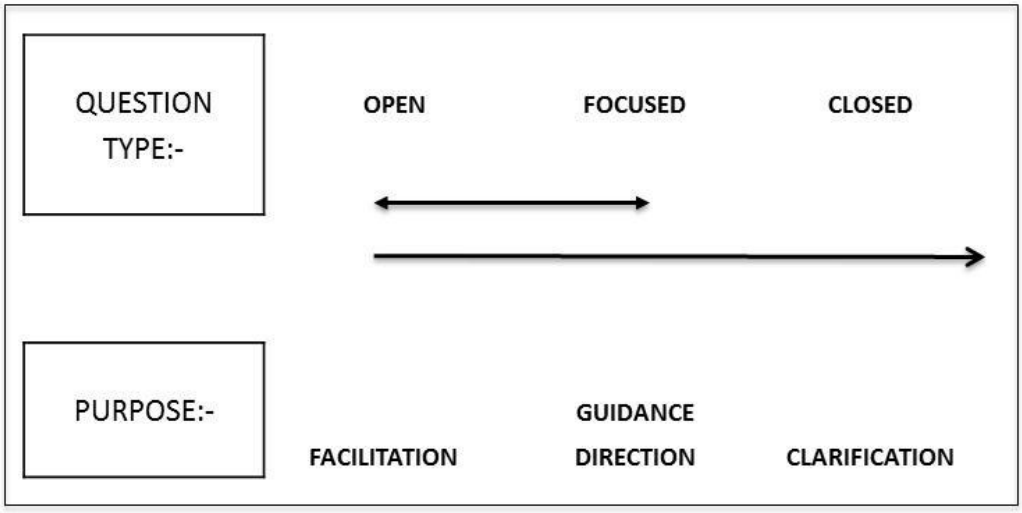
- the equipment in the surgery
- the patient's inability/reluctance to express their feelings, thoughts and anxieties
- the dental professional not asking appropriate questions
- the dental professional not listening to what the patient is saying, meaning and feeling and more importantly what the patient is not saying.

The dental professional must listen actively, listening with the third ear.

Therefore whether questioning, explaining or listening to the patient the dental professional must actively use and perfect these skills.

QUESTIONING

Questions are used for finding out more about patients' needs, wants, feelings etc. Different types of question exist and lie along a continuum, with respect to category. Each of these question categories are used for different purposes (Figure 1).



OPEN QUESTIONS

[1]Open questions allow the patient to talk. The patient is in control and can bring as much or as little information they feel is necessary, or wish to impart, to the interview.

[2]Open questions allow the patient to set the agenda.

[3]Open questions allow the patient to ventilate their anxieties and concerns.

[4]Open questions are usually used at the beginning of an interview/conversation.

[5]Open questions facilitate information gathering.

Examples: How have you been since we met last?

How are you doing?

How can I help you?

FOCUSED QUESTIONS

[1]Focused questions help to guide the interview/conversation.

[2]Focused questions help the patient to tell the health professional more about a topic they have difficulty in speaking about.

[3]Focused questions often say "I appreciate that it is hard to tell me [an open intention] about subject x [guidance or direction] but you must try [support].

Examples: Tell me more about the pain, what is it like?

CLOSED QUESTIONS

[1]Closed questions are important. They help to clarify important points brought to the interview/conversation by the patient.

[2]Closed questions are sometimes described as YES/NO questions. Usually there is only a yes or no answer.

[3]Closed questions are usually used late in the interview to clarify. If used too early in the conversation the patient will be unable to volunteer information and will just answer your questions in order to be helpful.

Examples: Its the tooth at the back that has been keeping you awake at night?

GENERAL GUIDELINES FOR QUESTIONING

[1]Take time to think before you speak

[2] Move between **open**, **focused**, and **closed** questions during the conversation.

[3]Avoid jargon, however if used it is important to be sure that the patient understands you.

[4]Ask one question at a time.

[5]LEADING QUESTIONS are to be **avoided**. The patient can feel so intimidated that even if they do not understand what you are saying they will say yes.

Example: The plaque around the teeth is causing the infection,
you can see that can't you? [YES!].

EXPLAINING

Explaining or giving advice to patients, is fundamental to the work of the health professional. Explaining is also an integral part of negotiating health goals with clients, using such frameworks as SMARTIS or ARMPITS. Explanations must be clear, concise and to the point. Advice must be specific and precise.

Perhaps the most important thing about explaining is clarity: to be quite clear about your objectives. Some questions you might ask yourself before you talk to your client are:-

[1] What changes do you want them to make?

[2] What you want your client to know, feel, be able to do?

GENERAL GUIDELINES FOR EXPLAINING AND GIVING ADVICE

[1]Be realistic in the objectives you set - give **only** 3 or 4 key points.

[2]Advice and instructions should be given early in the session -

most important information should be given first.

[3]Emphasise those items you think are the most important - **repeat** key points.

[4]Use short words and short sentences.

[5]Avoid jargon - make sure that technical words are understood.

[6]Information is best given in a structured way.

[7]Use visual aids [health education posters, mouth/tooth models] where possible, support what you are saying with a leaflet.

[8]Put client/patient at ease by checking if they are dentally anxious or have any worries - be friendly - not officious.

[9]Establish rapport, understanding and feedback.

[TACADE "One to One]

LISTENING AND NON-VERBAL COMMUNICATION

The third and most important of the communication skills is active listening. This is not simply hearing words being spoken but involves a concerted effort :-

- to listen to the **way** the words are said.
- to be conscious of the **feelings** underlying the words spoken.
- to recognise **hidden feelings**.
- to be aware of **what is left unsaid**.

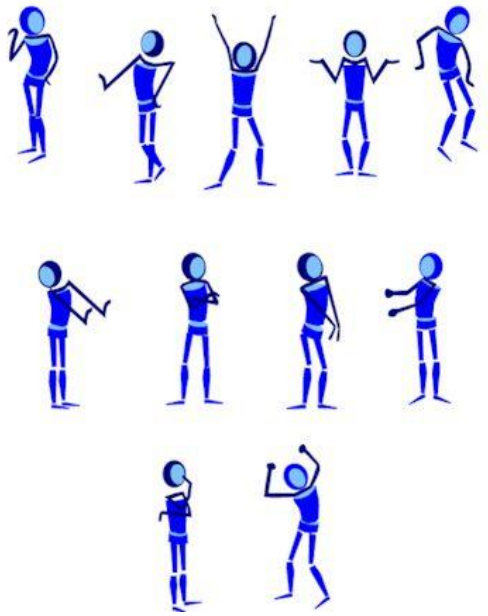
Often the main task of the listener is to help the person to talk. Again specific skills are involved in this. These are:-

- encouraging the patient to talk.
- giving attention to what is being said - being interested in the patient.
- reflecting feelings - for instance you seem pleased, upset.
- paraphrasing - the patient's words to clarify what they have been telling you.
- summing up - a brief re-statement of the main content and feelings the patient has alluded to during the interview.

Listening involves being aware of non-verbal communications. This is important since 65% of all social interactions are made up of non-verbal

communications. Non-verbal cues are more readily believed than verbal statements of intent - "actions speak louder than words" [Argyle 1973].

Some of the non-verbal aspects of communication which dental health professionals need to be aware of, since these can affect the clients' ability to cope with the dental experiences and communicate their feelings to the dental team, are :-



- LEVEL/POSITION

Refers to differences in height between people, whether people are sitting, standing or lying. If one person is standing and the other lying [as can occur in dentistry] the person who is lying can feel uncomfortable, vulnerable and at a disadvantage.

- PROXIMITY

Refers to how close people are to one another. In certain social situations the invasion of a person's personal space is disconcerting and unacceptable; at other times it is acceptable and welcomed. In dentistry the patient has given the dental professional permission to invade their social space for the delivery of treatment and is given in trust.

- POSTURE

Refers to how people stand, sit, lie or "hold themselves". Posture can indicate whether the patient is relaxed, uneasy or anxious. For instance a young child lying in the dental chair with her knees drawn up to her chest tells the dental professional how anxious she feels.

- EYE CONTACT

This is important as a first step in establishing rapport with patients. This can convey to patients that the dental health professional is interested, willing to understand their needs and feels empathy for them. Patients who avoid making eye contact with the dental professional are often frightened of dental treatment or the dental professional's response to their behaviour or to what they have to say.

- NON-VERBAL REINFORCERS OF SPEECH

These include tone, pitch, speed of talking and can indicate feelings such as anger, fear doubt etc. Another indicator of anxiety is referred to as 'ahs, ars and uhms'. These filled pauses indicate that the patient is trying to find words to convey their feelings, doubts etc to the dental professional.

Role-Play

This exercise allows you to practice your communication skills.

A series of vignettes between dental health support workers and their clients will be role-played by all members of the group. During each interaction two people will act as dental health support workers and patient [following given scenarios] and two as observers. Each person will have the opportunity to role play and to act as observer.

Feed-back will be sought at the end of each scenario. Feed-back should be positive and constructive.

Observer Schedule

Your job is to sit back and observe the encounter. Consider :-

What behaviours is the patient exhibiting ? [both verbal and non-verbal]

.....

How is the DHSW dealing with patient's behaviour?

.....

What behaviours is the DHSW exhibiting ? [both verbal and non-verbal].

.....

How would you describe the encounter?

constructive.....destructive

cooperative.....uncooperative

negative.....positive

hostile.....friendly

purposeful.....confused

COMMUNICATION SKILLS

Workshop [2]

HELPING PATIENTS TO CHANGE THEIR HEALTH BEHAVIOURS

INTRODUCTION

Patients' adherence with advice on oral health care is dependent on a range of factors such as perceived susceptibility, the potential severity of the condition, the costs to the individual of making the changes etc. [Health Belief Model]. Bringing about lasting and effective changes in health behaviours is not about manipulating patients and getting them to do what we, the health professionals want them to do. Rather it is about exploring the patients' attitudes and values in relation to their own oral health and encouraging them to identify and express their own dental health needs, as well as empowering them to make any necessary changes in their own lives.

Behaviour change is a very complex process, and in most cases is dependent on whether or not the patient is ready to change. The role of the health professional is to identify the patient's state of readiness to change, and to provide the appropriate help and support to enable them to make the necessary changes.

Prochaska and DiClemente [1986] proposed a model of behaviour change in which change is seen as a process, having five basic stages:

1 PRE-CONTEMPLATION

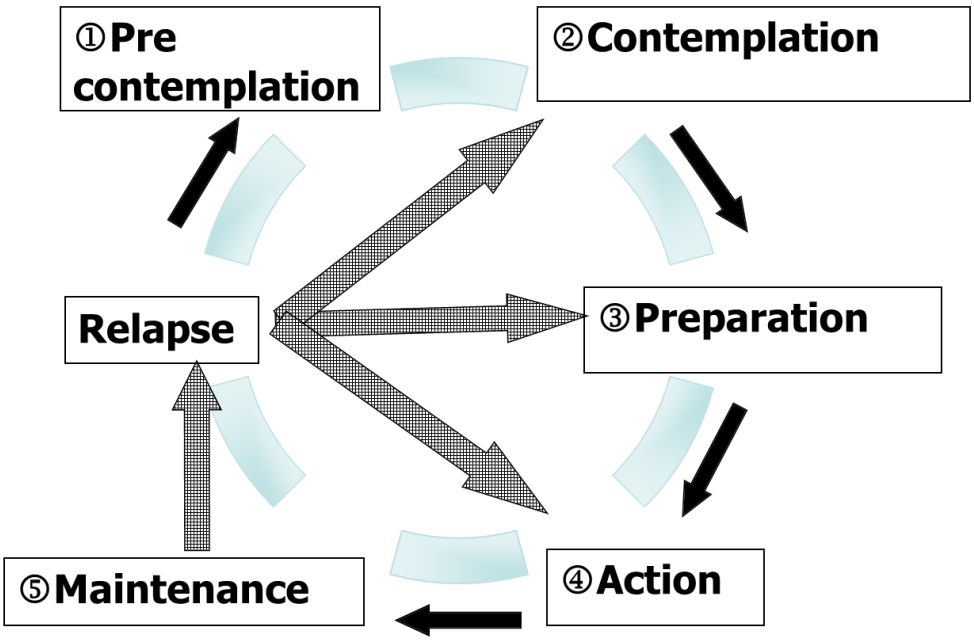
2 CONTEMPLATION

3 ACTION

4 MAINTENANCE

5 RELAPSE

The first two stages PRE-CONTEMPLATION & CONTEMPLATION include the period during which the patient is becoming aware of the problem and the potential benefits of changing their behaviour, but they are not yet ready to change. They are also becoming aware of the alternatives available to them to help them make the necessary changes. It is wrong to assume that people already know about the alternatives which are open to them, they may be obvious to us as health professionals, but not so clear to our patients. This part of the process can take a long time, as it involves information gathering, and working through feelings about making changes before making any decisions.



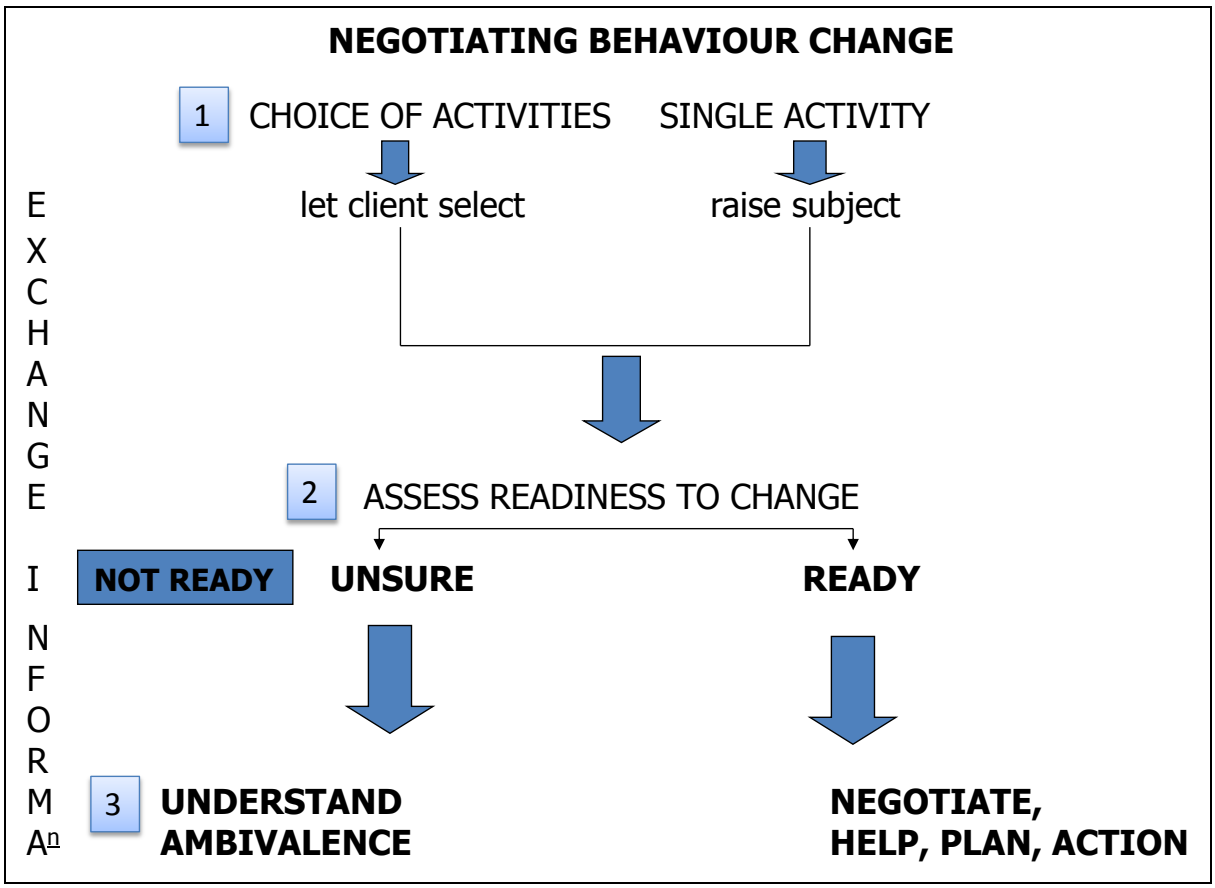
When the patient reaches the ACTION AND MAINTENANCE stages they have come to realise that the benefits of changing outweighs the 'costs' to them which the change in behaviour may incur. These are not necessarily financial costs, but the fact that they have to give up, what are for them, enjoyable and pleasurable practices or experiences. During this part of the process the health professional is usually involved in working with the patient in helping them to identify realistic goals which will help them to make the necessary behaviour changes.

The RELAPSE, stage occurs when [or if] maintenance strategies breakdown, and the undesirable behaviour is resumed. This stage is quite common, particularly where the behaviours are complex and difficult to sustain e.g. smoking. This reinforces the need for agreeing realistic goals which the patient is more likely to be able to achieve.

One of the strengths of the Prochaska and DiClemente stages of change model is that it recognises and allows for relapsing behaviour and the redirection of action. It also requires us to think beyond the K-A-B model of health education, which assumes that the provision of information leads directly to behaviour change, and accept that change is an evolving **'process'** in which our role [as health professionals] is that of **'facilitator'**.

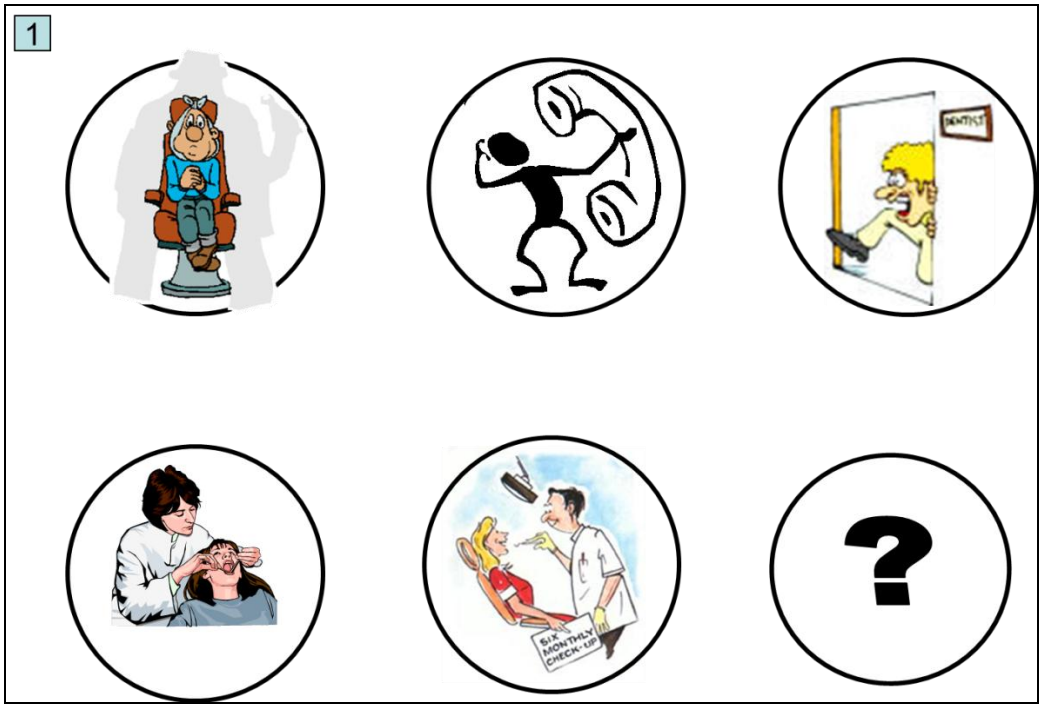
MOTIVATIONAL INTERVIEWING

Rollnick et al [1993] have developed a method of negotiating behaviour change based on Motivational Interviewing Techniques.



Much of their work has resulted from research on drug addiction where they found that the success of failure of negotiating behaviour change is dependent on certain concepts.

Choosing the activity card



Ambivalence

Many people feel ambivalent about the idea of changing their behaviour as it often means having to give up things which provide them with a lot of pleasure and enjoyment. We need to try to understand the underlying reasons for the patient's conflict. This can be done by exploring their attitudes to both the costs and the benefits of changing their behaviour. However if they perceive that the costs greatly outweigh the benefits they are unlikely to make the necessary changes.

Readiness to change

The patient's state of readiness is a critical factors in the process of change. At one end of the scale it may be that the simply require information to enable them to start to consider the possibility of change, while at the other end they may need assistance to help them identify the range of options open to them and to start to think about the benefits which change will bring them. The approach used by the health professional should be determined by the patient's state of readiness.

2

Resistance

This inertia to change can be influenced by the behaviour of the health professional. If the health professional tries to move too fast, or a confrontation situation occurs it is likely that the patient's resistance will go up. It usually indicates a need to change the approach or strategy used.

Two agendas

Where two totally different agenda exist [i.e. that of the patient and that of the dental health professional] it is unlikely that lasting behaviour change will take place. It is important to ensure that the patient is directly involved in identifying the behaviours to be modified and in setting their own health goals. Negotiating behaviour change falls somewhere between advice giving and counselling, recognising both the patient's agenda and your own.

Rollnick et al [1993] propose that health professionals can make mistaken assumptions about their clients, which can adversely affect the outcome of their interaction. They suggest that patients are more likely to openly consider change if we avoid imposing these assumptions on them.

Some dangerous assumptions include:

- this person ought to change
- this person is ready to change
- this person's dental health is a prime motivating factor for him/her
- if [s]he does not decide to change behaviour the consultation has failed
- patients are either motivated to change or not
- now is the right time to consider change
- a tough/frightening approach is always best
- I'm the expert - [s]he must follow my advice.

Principles of good practice in negotiating behaviour change include:

- respect for the autonomy of the patients and that their choices are important
- readiness to change must be taken into account
- ambivalence is common and reasons for it need to be explored and understood
- target/goals should be identified by the patients
- the expert [you] provides information and support
- the patient is the active decision maker

CHATTERBOX TRAINING
(DAPER project- Phase III)

Inverness 7th March 2013

Sucharita Nanjappa

Development of CHATTERBOX

- Objective: to develop an evidence-based intervention to identify parental dental concerns and facilitate engagement with a health care worker to enable parents to access dental care for their children, as part of the Childsmile programme.
- Design informed by findings from Phase I and II of the DPAER project.

Main parental concerns:

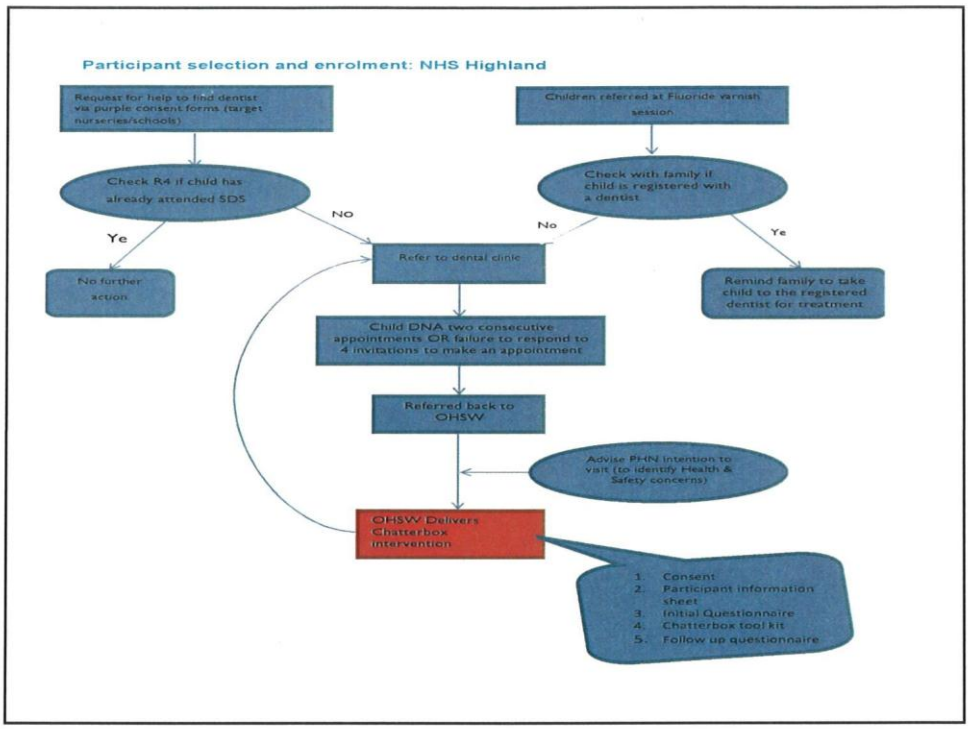
- Going to the dentist:
  - found travelling difficult
  - expensive
  - perceived the dentist as not being a family friendly place
- Parental exclusion:
  - feeling down
  - not feeling like usual self
  - not wanting to do anything and feeling miserable
- Related to where they lived:
  - not feeling settled in their homes
  - having difficult neighbours
  - not being happy with where they were living
- Higher concerns were predicted for:
  - parents who were not working
  - who did not own their home
  - who had a greater number of children.

CHATTERBOX Kit

- A timeline base: Relevant activity cards selected and placed on the timeline base to construct a visual picture of an average day for each family
- 81 reusable activity cards:72 cards, separated into categories and colour coded to simplify selection, 9 cards are blank, allowing for parents to create their own variations
- Appointment postcards: made unique by having the child's foot/hand imprinted onto the front of the postcard

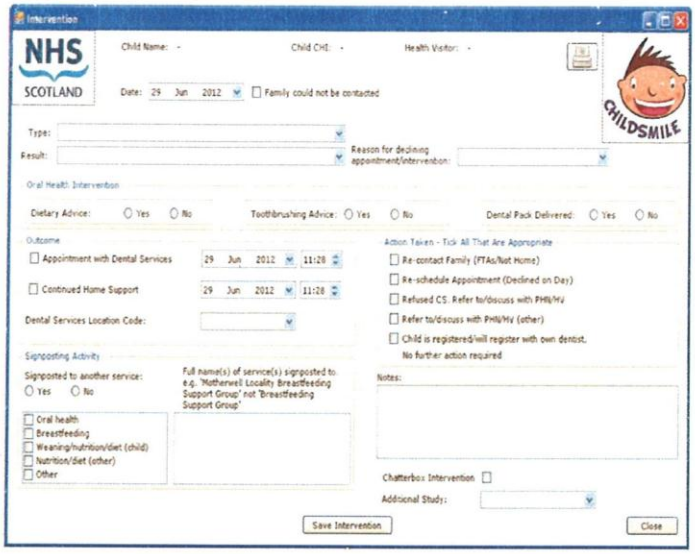

10:00
11:00
12:00
1:00
2:00
3:00
Your concerns
Difficulty attending appointment with all 4 children
What is your appointment for
dental check-ups
When
Wednesday [redacted] November at 3:45 pm
Where
Kings cross
Our suggestion
[redacted] will meet you at kingscross
With who


8:00
9:00
10:00
11:00
12:00
1:00
NOISY!
11:00
12:00
1:00
2:00
3:00
4:00
5:00
This is the best time for me!



Data collection

1. Participant information sheet
2. Consent form
3. Questionnaire 1
4. Chatterbox
5. Appointment postcard (optional)
6. Photograph the timeline (very important)
7. Follow-up (after date of appointment)
   - Questionnaire 2
   - OHSW fills feedback form



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Appendix 5: CHATTERBOX poster

Poster presented at Faculty of Public Health Committee of the Faculty of Public Health in Scotland Annual Public Health Conference at Crieff Hydro Hotel 9th November 2012.

CHATTERBOX

Customising services around Dental Health Care

Background

In April 2012 two Master of Design students from Duncan of Jordanstone College of Art (DJCAD) at the University of Dundee accepted a brief proposed by the Dental Health Services Research Unit. The challenge was to create a method or tool that could assist Dental Health Support Workers in improving the appointment attendance and the registration of families finding difficulty accessing preventive dental care for their children.

The Issue

Many of these families live in areas of high deprivation and poverty. By providing them with tailored support from Dental Health Support Workers and enabling these parents to identify specific concerns, it will be possible to make assessments of how ready these families are to engage with the dental care available and tailor specific services and support around their needs.

This project and toolkit builds upon the existing qualitive research of the Dental Health Research Unit. Through this extensive research, key areas of concern had previously been identified such as difficulties accessing the system, travel implications, dental expenses, perception of dental surgeries. Other common concerns that were discovered were parental exclusion, lack of motivation and living conditions.

By creating a tool to help DHSW's and parents build positive relationships, develop trust and structure conversations, it is possible to have an effect upon multiple aspects of family life.

"The better the family function the better the health behaviours" Sucharita Nanjappa

The Approach

Through discussions with the DHSRU a concept developed based around facilitating conversations through storyboarding. This would allow parents to gain a visual picture of their daily activities and talk through problems that they felt were arising.

The storyboard becomes a platform to help develop the parent's ability to identify, consider solutions and eventually solve their own problems. This aids with development of confidence and build relationships between support workers and families.

Chatterbox went through a series of iterations and user testing and client meetings with these varied formats proved invaluable within this kits development.

The Kit

Chatterbox consists of : The Timeline, which creates the base to work upon; 81 re-usable activity cards used to construct a 'visual picture' of their appointment day, 9 of which are blank allowing for parents to personalise their own version, the remaining 72 cards are separated into varying categories; and a set of prompting questions for the Dental Health Support Worker to ask, helping analyse when, where and why problems occur.

The problems identified are then transferred onto 'Appointment Postcards.' Each Postcard serves as a reminder of when the next Dental Health appointment is; and as a record of the problems and solutions discussed.

The cards are made unique to each family as the child/baby has either their foot or hand printed onto the front of the postcard, this serves as an added incentive for the parent to keep the postcard. The Dental Health Support Worker also retains a copy for their own records. The timeline is photographed, printed and used as a platform to develop upon in future visits.

The Future

Chatterbox is currently undergoing further user testing and trials with Dental Health Support Workers and families within Dundee and the Highlands.

In September 2012 the outcomes from this set of pilot tests will be reviewed by the designers, DHSRU and the DHSW's to address how to progress further and make any necessary changes. Chatterbox and the research which it is linked to are also being prepared for public health conferences in November.

The Team

NHS Tayside and NHS Highland
Professor Ruth Freeman, Oral Health and Health Research Programme, Dental Health Services Research Unit, University of Dundee
Sucharita Nanjappa, Research Fellow (DAPER), Oral Health and Health Research Programme, Dental Health Services Research Unit, University of Dundee
Stephanie Chambers, Research Fellow, Oral Health and Health Research Programme, Dental Health Services Research Unit, University of Dundee

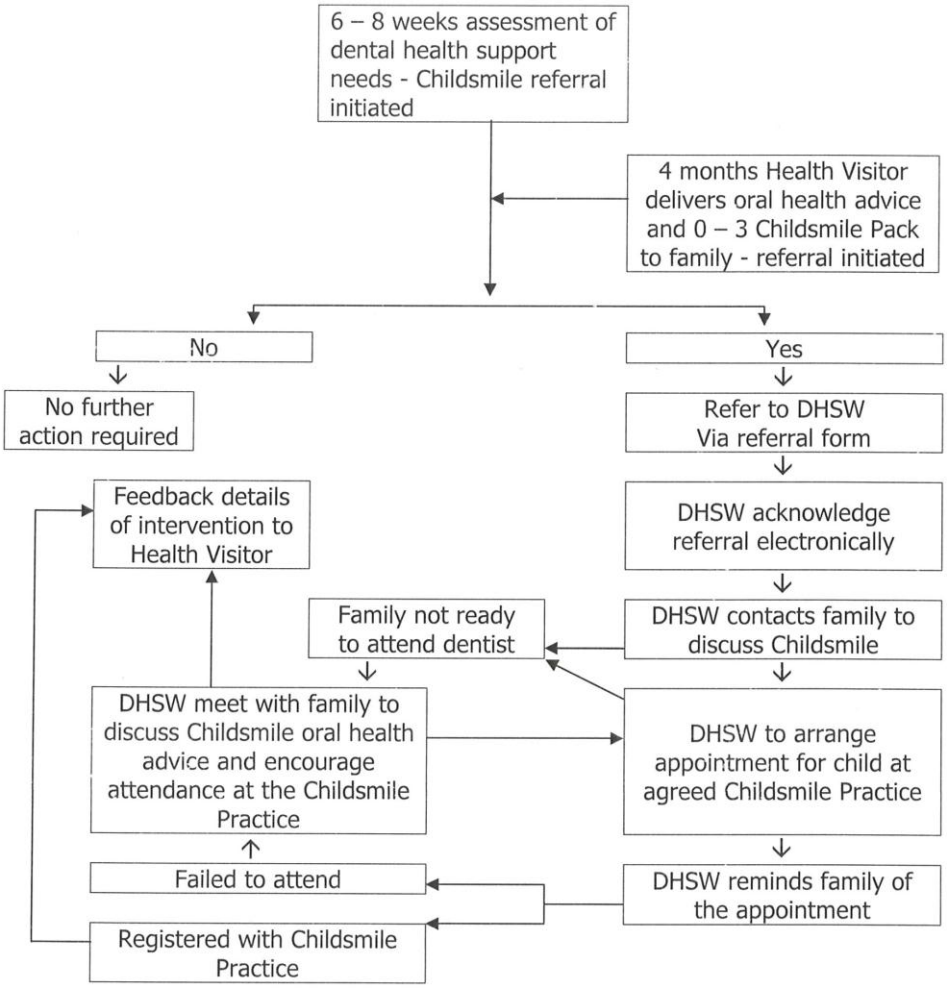
DJCAD, University of Dundee
Stephanie Fulke, Rebecca Lindsay, Master of Design students

Funding provided by Childsmile Programme : NHS Greater Glasgow and Clyde

Appendix 6: Childsmile Practice pathway

- NHS Tayside
- NHS Highland

Health Visitor
Childsmile Practice Pathway



www.child-smile.org

Health Visitor
Childsmile Practice Pathway

Guidance notes

Childsmile is to be rolled out across Tayside as a universally-accessible, child-centred programme delivered through a network of NHS dental practices.

The programme offers two levels of support – universal and additional to assist families to access oral health advice and dental care.

The attached pathway begins with the Health Visitors assessing (at 6 – 8 weeks assessment) whether a family requires support in finding their child a dentist. The Health Visitor will link with a locally based Dental Health Support Worker (DHSW) who will support (link with) the family and in some cases visit them at (their) home. It is important that the DHSW is made aware of any issues that may arise if considering a lone home visit e.g. large dog, family issues, illness (in family), particular hazards.

There are no set criteria for the referral process but some factors which you may wish to consider are when:

- The family is not already registered with a dentist and has no plans to register
- The family is not attending their dentist regularly
- The baby has sibling(s) with a history of dental decay, fillings or extractions
- The family lives in area with higher risk of dental decay in the population

All referrals will be acknowledged (appendix 2) and feedback (appendix 3) will be emailed when the period of support is complete.

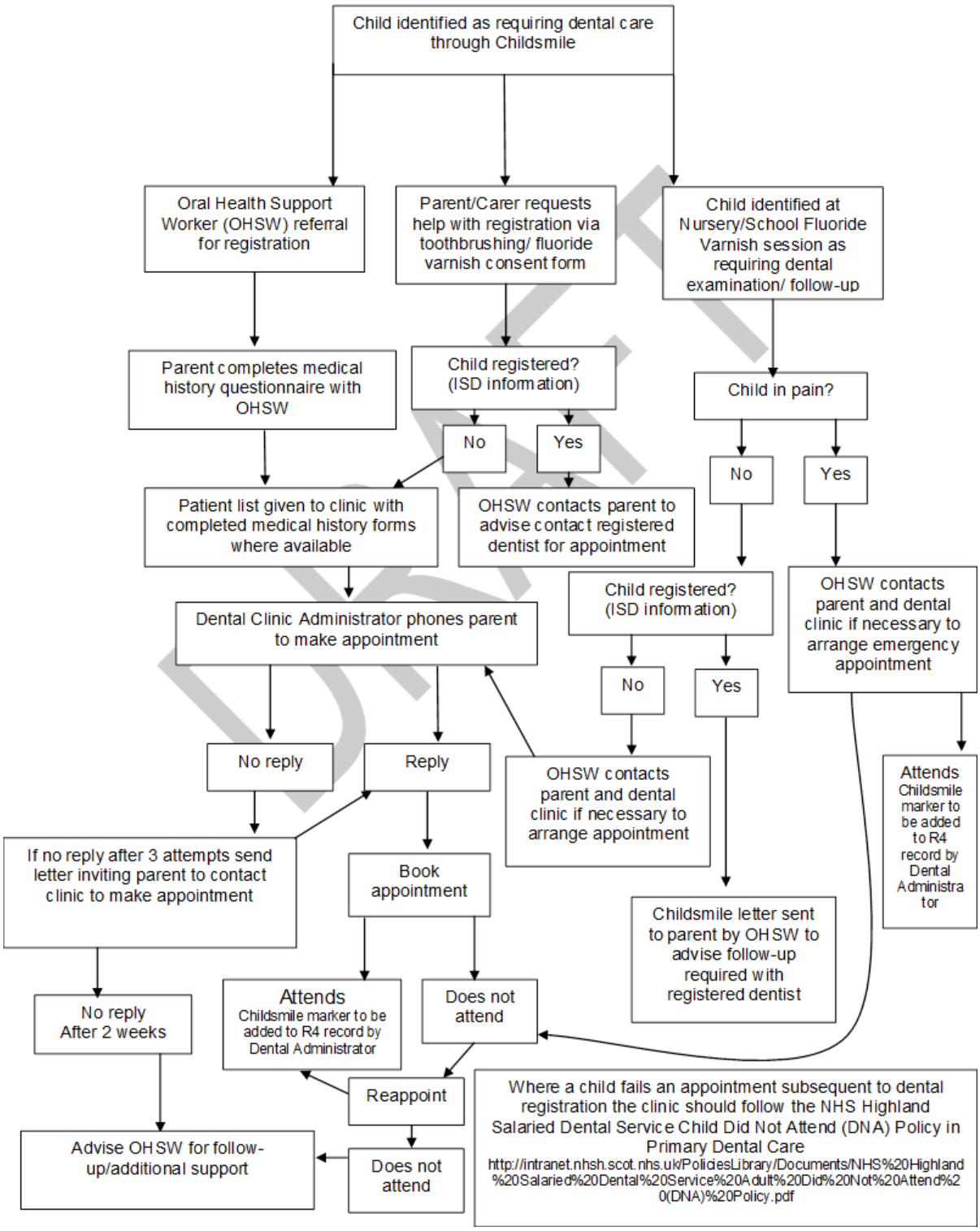
We appreciate that there may be families who you feel would not benefit from an additional health professional entering their homes in these circumstances please contact the DHSW with any support/resources you would require.

www.child-smile.org

NHS Tayside

Childsmile Appointment Booking Protocol

Patients identified via Childsmile Practice/Nursery/School as requiring appointments



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